AUDIO-FOR-VIDEO • BROADCAST • INTERNET AUDIO • LIVE SOUND • MULTIMEDIA • POST PRODUCTION • RECORDING

# AUDIO MEDIA

THE WORLD'S LEADING PROFESSIONAL AUDIO TECHNOLOGY MAGAZINE

## Tron: Legacy

*Game over... Play again?*

## Lexicon LXP Native Reverb



Also:

Gear Of The Year

Swag Competition

MADI Special

And Much More!

A NEWBAY MEDIA PUBLICATION

9 770960 747024 10

WORLDWIDE EDITION

ISSUE 241 • DECEMBER 2010 • UK £3.80

Coles 4050 • Rupert Neve Designs Portico II • Thermionic Culture The Rooster • Product Sampler: Plug-ins • Sound Devices USB Pre 2 • PenteoSurround PostPro • Doe-Ray-Mi-Casa: The Sound of Music Restored • GeoFocus: India • What's Up UK: MediaCity UK • Video Guide: Colour Grading Part 10 • AES Show Report & Product Launches • Recording News • Post News • Broadcast News • AMSR News • . . .And More!

# WAVES SPECIAL

## Offer ends 20th January 2010 UK ONLY

**Lowest prices in Europe guaranteed!**

# 40% OFF!

## All WAVES Plugins, Bundles & Upgrades

WAVES

0845.500.2.500
www.sonic-distribution.com

SONIC

# Perfect take every time ...

## Gil Norton

Foo Fighters
Pixies
Gomez
Feeder
Counting Crows
Maximo Park

## "I can't remember a single session over the last 5 years on which I haven't used an SE mic"

"I've found the 4400a to be a hugely versatile mic - it's great for acoustic instruments, and I especially like it on drums and percussion. Its hyper-cardioid pattern is extremely useful on toms and snare as it controls cymbal spillage really well and delivers great punch and tone"

- 4 polar patterns
- 10 and 20dB pad
- 60/120 Bass cut
- Hand crafted capsule specialist neutral tuning for multiple instrument and vocal applications
- Multi function shock mount (patent pending)*
- Available as a stereo pair

The 4400a is specially tuned to get the most from a wide range of recording applications, including vocals, drums, guitars, piano, strings and wind. This makes it the ideal choice for project studios and professionals alike: a mic that engineers in the know can call on in any situation to get the best results, and fast!

0845.500.2.500
www.sonic-distribution.com

SONIC

10 YEARS

sE

Sound Engineering
www.seelectronics.com

# contents

ISSUE 241 • DECEMBER 2010

## REGULARS


### WHAT'S UP UK 16

Both cynicsm and support have surrounded MediaCity UK since its inception. KEVIN HILTON assesses the current attitude to the project.

### GEOFOCUS: INDIA 18

JIM EVANS uncovers the latest technologies that were invested into this year's Commonwealth Games, held in Delhi, India.

### FINAL CUT: TRON: LEGACY 28

PAUL MAC talks to the Skywalker team about the deathly frisbees and neon-lit motorbikes that make the sequel a real contender of the original.

### VIDEO GUIDE 54

KEVIN HILTON continues his look at the development of colour grading, with a jaunt into the new territories of DI: digital intermediates.


## FEATURES


### SWAG COMPETITION 20

SWAG is back – and this year winner takes all! That's right, we're giving our enormous caboodle of industry goodies away to just one lucky prize winner in our easy-to-enter Christmas competition.

### GEAR OF THE YEAR 32

AUDIO MEDIA rounds up the very best gear of 2010 in an easy ready-to-photocopy format to send direct to Santa.

### DOE-RAY-MI-CASA 42

RICH TOZZOLI talks to Brant Biles about Mi Casa's work restoring the original *Sound of Music*.

### MADI – THE COMEBACK KING 46

The King is dead. Long live the – oh, hang on a minute. There's still life in the ol' devil yet! MADI seems to be making a resurgence, so AUDIO MEDIA checks out its latest incarnation.


## REVIEWS


### PENTEOSURROUND POSTPRO 38

BEN STILES puts the quite unique 'panorama slicing' stereo-to-5.1 conversion unit to test in the musical arena. How will it fare?

### SOUND DEVICES USBPRE 2 40

Cold, hard cash shouts louder than honeyed words, finds STEPHEN BENNETT as he falls to the allure of Sound Devices' new audio interface.

### LEXICON LXP NATIVE REVERB PLUG-IN 44

That great, top-notch Lexicon sound – in-the-box? SIMON ALLEN finds out if the plug-in matches up to the reputation of its more traditional cousins.

### PRODUCT SAMPLER: PLUG-INS 50

There's a plug-in for just about every effect going, so where do you start finding what you want? AUDIO MEDIA sieves out some of the best and most interesting.


## RUSHES


### COLES 4050 22

It's an 'odd bird' indeed, says ROB TAVAGLIONE of the British company's first stereo mic; but worthy of investment nonetheless.

### RUPERT NEVE DESIGNS PORTICO II 24

The name 'Portico' rests a mantle of high-repute on the shoulders of any product carrying it. SIMON TILLBROOK tests whether the Portico II can bear the weight of its forebears.

### THERMIONIC CULTURE THE ROOSTER 26

A labour of love, and a wake-up crow to all pre-amps says ALISTAIR McGHEE, as he delights in its top quality switchery pokery.


## COVER STORIES

### TRON LEGACY 28

PAUL MAC talks to the Skywalker team about the inspired sound that make the sequel a real contender of the original.

### GEAR OF THE YEAR 32

AUDIO MEDIA rounds up the very best gear of 2010 in an easy ready-to-photocopy format to send direct to Santa.


## NEWS


### RECORDING 6

Wisseloord gets resurrected, Avid shows off the power of 9 at AES with its latest Pro Tools, and SSL sweetens Nectar with an introductory offer.

### POST 8

BIAS hits a new Peak, Hannigan comes under question at GameCity festival, and LipSync has new projects under new ownership.

### BROADCAST 10

Lawo gets in on Korea's window to the world, while SOUND4 celebrates innovation in Voice 'L'.

### AMSR 12

L-Acoustics can doctor as well as rock, Soundcraft Studer takes the show to the stage, and Linkin Park rides the Wave to tour success.

### AES REPORT 14

Missing it doesn't mean you've missed out – AUDIO MEDIA reports on the top new products unveiled at this year's AES.

## FEATURE
SWAG COMPETITION 20

## REVIEW
LEXICON LXP NATIVE REVERB PLUG-IN 44

## RUSHES
RUPERT NEVE DESIGNS PORTICO II 24

## REVIEW
SOUND DEVICES USBPRE 2 40


# leader

One of the most potentially spiritual moments that a computer user will come across in his or her professional life is the situation that precipitates the question: "When it says 'please wait', how long do I wait, exactly?"

The thing is, I caught myself looking at the screen the other day, trying to see through that mundane message and sense what the computer was really doing, on the inside. Was it having the computer equivalent of a cup of tea and a cigarette round by the bins? Was it weighing up a progress bar against self-awareness? Were its fingernails scraping slowly off the cliff-edge of logic while its legs were dangling over a fiery chasm of unbreakable, infinitely nested loops... Or had my broadband crapped out again?

The main questions are: What to do? And when to do it? Personally, I often lament the fall of the CRT monitor from favour, simply because slapping the side of a flatscreen is far less satisfying. Otherwise, you have to work out what your endurance quotient is... you have to discover for yourself how long you're willing to let this stalemate continue before risking, 1) having to start the process again and finding out it takes exactly the same amount of time, or 2) Not being able to start the process again because you've broken it.

Game theory has never been so valuable.

Now imagine what is going through a customer's mind when they hand over a track to be mastered (online or otherwise), or a restoration to be completed, or a list of effects to be provided, or some media to be transferred, or indeed request any service that involves making the request... waiting... And waiting... And waiting.

I've said 'waiting' three times and you've only made it through the studio doors, but the customer is already fretting over a precious creation. Keep the customer informed, and the customer will come back, having had a comfortable experience. If you sit him or her in front of a virtual 'please wait' sign, expect frustration, worry, possible reboot... and a slap (unless you're a flatscreen).

Merry Christmas and a happy new year to all, from the *Audio Media* team. Don't forget to enter the Christmas SWAG competition.

Paul Mac, *Editor*

Paul Mac will be running the London Marathon on April 17th 2011 in aid of the National Deaf Children's Society (NDCS). It would be fantastic if you would consider supporting this endeavour with a small donation to the NDCS via **www.justgiving.com/jogonmac.com** If you want to consider some generous corporate sponsorship, just contact Paul at p.mac@audiomedia.com. Please note, he no longer accepts pies as payment.


**AUDIO**MEDIA *is a Sustaining Member of the Audio Engineering Society.*

**AUDIO**MEDIA

www.audiomedia.com

AUDIO MEDIA (Europe), 1st Floor, 1 Cabot House,
Compass Point Business Park, St Ives, Cambs, PE27 5JL.
Telephone: +44 (0)1480 461555 – Facsimile: +44 (0)1480 461550

General E-mail: mail@audiomedia.com – Press Release E-mail: pr@audiomedia.com

**Managing Director/Circulation**
Angela Brown
a.brown@audiomedia.com

**Group Publisher Europe**
Raffaela Calabrese
r.calabrese@broadcast.it

**Editor In Chief**
Paul Mac
p.mac@audiomedia.com

**News/AMSR Editor**
Jo Fletcher-Cross
pr@audiomedia.com

**Production Editor**
Lanna Marshall
l.marshall@audiomedia.com

**Design & Production Manager**
John-Paul Shirreffs
jp.shirreffs@audiomedia.com

**European Sales Manager**
Graham Kirk
g.kirk@audiomedia.com

**Acting News Editor**
David Mackenzie
d.mackenzie@audiomedia.com

**Regional Sales Manager**
Bob Kennedy
bkennedy@imaspub.com
+44 (0)1279 861264

**US Sales Manager**
Dave Carson
dcarson@nbmedia.com
+1 615 776 1359

**Subscriptions**
subs@audiomedia.com
UK £43
European (airmail) £60
International (airmail) £72
Payable in Sterling through UK bank

NewBay Media

www.nbmedia.com



The contents of this publication are subject to worldwide copyright protection and reproduction in whole or in part, whether mechanical or electronic, is expressly forbidden without the prior written consent of the Publishers. Great care is taken to ensure accuracy in the preparation of this publication but neither IMAS Publishing (UK) Limited nor the Editor can be held responsible for its contents. The views expressed are those of the contributors and not necessarily those of the Publishers or Editor. The Publishers accept no responsibility for the return of unsolicited manuscripts, photographs, or artwork.

© 2010 IMAS Publishing (UK) Limited. All rights reserved.
*Within Broadcast & Production

NEW PRODUCTS

Millennia Music has introduced the AD-596 analogue to digital converter, and the HV-35 mic amp. The AD-596 is Millennia's audiophile-quality proprietary converter design, based on the award-winning AD-R96. Uniquely, it features the True-Lock-Clock system for outstanding performance with an external clock. DB25 connectors handle analogue inputs and digital AES outputs.

The HV-35 is based on the HV-3 series of mic preamps, and includes additional features such as front panel instrument input, 80Hz roll-off filter, 48V phantom, and continuously variable gain control.

www.mil-media.com

ASSET ACQUISITION

Prism has announced that it has acquired certain assets of Imerge Ltd., the home media server business. Imerge brands will continue with current production, as well as new product development under Prism Sound. Support for former customers of Imerge will be maintained.

Prism Sound's Chief Technical Officer, Ian Dennis, commented: "Imerge is a fine example of outstanding technical innovation in the UK, and we are proud to take over the baton."

The acquisition takes Prism Sound group into the home entertainment sector for the first time.

www.imerge.co.uk
www.prismsound.com

## Nucleus Ships to Studio Centres

Following a successful reception at the recent AES, Solid State Logic has announced it has begun shipment of its new Nucleus console.

With advanced DAW control based on concepts developed for the SSL Matrix, transparent SuperAnalogue monitoring, high class analogue mic pres, pro audio quality audio interface, and bundled SSL Duende Native plug-ins, the Nucleus is well aimed for the professional project studio.

SSL describes the console as 'not only unique, but outstanding value' – a 2+2 ch USB audio interface provides record and playback for your DAW, while the mic pres are SSL SuperAnalogue – identical to those on Duality, AWS, and X-Rack systems, which gives Nucelus a professional standard transparent mic record path. There are two combi XLR inputs, and digital I/O via S/PDIF.

The bundled Duende Native Essentials includes new versions of the SSL Channel EQ & Dynamics, and Stereo Bus Compressor VST/AU/RTAS plug-ins.

Nucleus is now available at £3,000 (exc.VAT), from UK distributors Sound Technology.

www.solidstatelogic.com
www.soundtech.co.uk

## iZotope Releases Nectar

iZotope has announced that it is now shipping Nectar, a complete vocal processing tool-kit announced at this year's AES.

The product adds to the line of award-winning iZotope plug-ins, including everything users need to quickly and easily find the vocal sound they are looking for. Featuring 110 professionally designed vocal production styles in 12 genres, powered by 11 processing modules including Pitch Correction, Breath Control, Compressors, DeEsser, Doubler, Saturation, EQ, Gate, Limiter, Delay, and Reverb; users can select and customise a style to suit. An Advanced View allows access to the underlying modules that power the plug-in.

Vice President of Product Management for iZotope, Hart Shafer, said, "Nectar is designed so professionals can work faster and beginners can get results quickly… end users can choose how much creative control they want over the sound. Either way, the result is high quality vocals."

An introductory price of US$199 for Nectar will run until December 13, 2010, with an MRSP of US$299 thereafter.

www.izotope.com/nectar

PRODUCT APPLICATION

Studio 5/5 has been using SADiE recorders and consoles to complete the sound design for a number of new theme park rides and attractions.

A SADiE H64, PCM2, PCM8, and three LRX2s have been used by the facility to create sounds for projects such as *The Castle of Horror* and *Nightmare*, the world's first 5D theme park shows.

www.sadie.com

PRODUCT UPDATE

Metric Halo has announced the release of version 5.4 of its MIO software. While enhancing stability and performance of the software, Metric Halo has also added new features including infrared r/c support, and a number of bug fixes encountered with V.5.3. V.5.4 can be downloaded online.

www.mhlabs.com

NEW PRODUCT

Blue Microphones has released the 2nd gen. Mikey portable recorder for the iPod. With improved circuitry and enhanced features, the Mikey 2G features two custom-tuned Blue capsules for professional recording capabilities, 3.5mm line-input, and 230-degree range of adjustment.

www.bluemic.com

MILESTONE REACHED

Audio Network and YouTube have recently celebrated the 100 millionth view of videos featuring music from the Audio Network Production Music catalogue, a sign of the success of a partnership that provides YouTube content producers with access to free world-class music. These tracks are used around the world by broadcasters and producers from the BBC and MTV, to National Geographic.

www.audionetwork.com

NEW LINE

UK-based Handheld Audio has started distributing the new Ultimate Ears custom moulded reference in-ear monitors. They are designed for professional studio engineers and producers for use during recording, mixing, and mastering original music content, as well as FOH venue tuning, live recording, and mixing. The product has been developed and tuned in collaboration with the Capitol Studios engineering team.

www.ultimateears.com
www.handheldaudio.co.uk

FACILITY UPDATE

Miloco Studios has joined forces with producer/mixers Philippe Weiss and Jean-Francois Delort to run their Paris-based SSL studio, The Red Room. The centre-piece of the studio is a modified SSL 4056 G+ console, featuring 24 E-Series and 32 G-Series EQs. The desk is complemented by a custom TAD monitor system and racks of top-end analogue outboard.

www.miloco.co.uk/redroom

SOFTWARE UPDATE

Propellerhead has announced the immediate availability of two maintenance updates to their Record and Reason software: Record 1.5.1 and Reason 5.0.1. These free updates for owners of Reason 5 and Record 1.5 bring a number of bug fixes and improvements to the software and are recommended for all.

www.propellerheads.se

CORRECTION

Last month, in our feature on loudness, the product section may have given you the impression that Trinnov's Smart Meter product was only available as an update to its Optimiser product. This is not the case. You can buy a Trinnov Audio Processor and any software options you need, including a standalone implementation of Smart Meter. Apologies for any confusion.

www.trinnov-audio.com

NEW PRODUCT

## The Power Of 9

Avid has completed its recent run of product launches by taking Pro Tools 9 software for native and HD to the AES Convention in San Francisco last month. Significantly, version 9 also replaces Pro Tools LE in the Pro Tools software family, and integrates broad hardware I/O support and EUCON control protocol integration. The actual install is common across the system options, so Pro Tools 9 HD uses the same installation.

Automatic Delay compensation is now standard for the formerly 'SE' product level, along with a track count doubling to 96 mono or stereo voices, an internal bus count increased by a factor of eight from 32 to 256, 160 aux track capability, Beat Detective, as well as the components of the formerly optional Music Production and DV toolkits, including the Time Code Ruler and AAF/OMF/MXF interchange, and an oft-requested MP3 export capability.

Pro Tools 9 is a native system with ASIO and Core Audio support, allowing it to function with Avid I/O hardware, third-party I/O devices and on computers with only built-in audio interfaces.

www.avid.com

NEW FACILITY

## Resurrecting Wisseloord

Wisseloord Studios in Hilversum, Netherlands, is being rejuvenated for a new century by a confluence of creative minds, and with the cooperation of major manufacturers of professional audio products. Originally built in 1978, Wisseloord is renowned historically as a destination studio for rock 'n' roll royalty. Producer Ronald Prent will be Creative Managing Director, Darcy Proper will head the mastering department, and Paul Reynolds will serve as Commercial Managing Director.

API is supplying a 64-channel Vision console to the studios, which will also boast one of the biggest installations of PMC BB5-XBDA surround systems in Europe. The mastering rooms will feature PMC AML2's for close-field work and EgglestonWorks Savoy Signatures for main monitors. SPL is supplying mastering consoles for the two mastering suites.

Prent has also specified over 100 channels of Prism Sound ADA-8XR conversion for the studio (biggest ever installation) and will be installing a 40-fader Avid Euphonix System 5 console. The acoustic design has been undertaken by JV-Acoustics.

www.wisseloord.nl

PRODUCT UPDATE

Smart AV has released the new Tango Console Operating Software version 2.5. This major new version includes new functionality formally DAW engines. Logic users can now insert, control, and move plug-ins directly from the Tango surface; Nuendo users now have all major Nuendo 5 features covered, and Pyramix users can assign individual channel strip features into different automation modes.

Looking forward Smart AV has stated it is already working on the next big upgrade, which should increase the number of supported DAWs. An announcement is expected about this in the new year.

www.smartav.net

CATALOGUE RELEASED

HHB has released the 2011 edition of its renowned pro audio catalogue, available in both print and digital versions.

Billed as "The Essential Guide to Professional Audio Technology" it has been expanded to 188 pages and includes editorial features on topics such as loudspeaker placement, loudness, and surround acquisition.

To complement the printed and digital offering, the HHB Catalogue 2011 is also available in a convenient and searchable format at www.hhb.co.uk. To receive your copy for free, all you have to do is fill in your details at the HHB website.

www.hhb.co.uk/register

NEW PRODUCT

BIAS has unveiled Peak Studio, a new edition of the audio editing software for Mac OS X. VP of Business Development for BIAS, Jason E Davies, said, "The combination of precision sample editing, intuitive multi-channel mixing, and a broad palette of mastering and restoration tools, makes Peak Studio a compelling production suite."

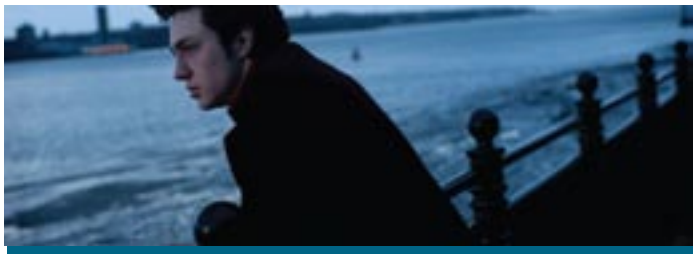
www.bias-inc.com

GAMING INSIGHT

A concert celebrating James Hannigan's videogame music was held at this year's GameCity festival in Nottingham. Hannigan's musical canon was brought to the stage under conductor Allan Wilson. John Broomhall also held

interviews throughout the evening providing insights into the music process for games. Hannigan discussed interactive music techniques with live demos showing how music is structured for in-game delivery.

www.gamecity.org



## Onwards and Upwards for LipSync

Two of LipSync's directors have completed a management buyout of the company, taking full shareholdings from the company's founder Jon Diamond. Peter Hampden, who founded the company alongside Diamond in 1986, takes on the role of MD, while Norman Merry remains as Finance Director.

It is a move described as an 'amicable decision', with Diamond leaving the company to pursue his interests in production. Hampden thanked Diamond for his efforts over the past 24 years, also commenting, "As we open a new chapter in LipSync's history, we are in a terrific position to move onwards and upwards in both post and production."

LipSync, whose previous credits include *Nowhere Boy* and *Made in Dagenham*, have also announced their involvement as production partner in two more period films, *The Deep Blue Sea* and *My Week with Marilyn*. LipSync will provide full post on both projects, including VFX and audio.

www.lipsyncpost.co.uk

## A-loud To Touch

TC Electronic's TouchMonitors TM7 & TM9 have gone on display for the first time in Europe at the Tonmeistertagung in November.

TC touts the TouchMonitor as 'the ultimate loudness meter solution', featuring a touchscreen, consistent loudness readout, and compatibility with a range of broadcasting standards. The loudness meter comes in eight configurations, but users will be able to expand and customise it to suit.

The TouchMonitor Tm7 and TM9 will be available from January.

www.tcelectronic.com/touchmonitor

NEW APPS

Neyrinck has introduced two new iPad apps, C-Control and V-Control Pro, which are Pro Tools controllers. Designed to be powerful and easy to use, the apps mean you can now control Pro Tools from wherever you are recording/mixing.

www.neyrinck.com

PROJECT REPORT

Hackenbacker has completed the audio post for *Any Human Heart*, a new mini series. With an all star cast, the story follows the life of writer Logan Gonzago Mountstuart through the 20th century. Hackenbacker's Nigel Heath commented, "We're all very proud of the way these films sound."

www.hackenbacker.com

NEW INSTALL

NBC Sports has installed an SSL C300 HD digital console in its post production studio. The 48-channel, 230-input console handles HD and SD distribution in both 5.1 surround and full stereo. The studio is used in production for *Football Night in America*.

www.solid-state-logic.com

See you at NAMM, Hall A, Stand 6296

RIEDEL The Communications People

Interfaces for MADI, ALLEN & HEATH, SOUNDCRAFT, STUDER, YAMAHA & more...
ROCKNET PERFORMANCE AUDIO NETWORKS
The Solution for World Class Events.

WUPPERTAL | BEIJING | BERLIN | GLENDALE | LONDON | SINGAPORE | SYDNEY | VIENNA | ZURICH

www.riedel.net

# Where there's sound, there's **WAVES**.

| **Gold** | **Platinum** | **Diamond** | **Horizon** | **Mercury** |
|---|---|---|---|---|
| Over 20 plugins | Over 30 plugins | Over 40 plugins | Over 50 plugins | Over 100 plugins |

WAVES

www.waves.com

PRODUCT APPLICATION

Junger Audio's LEVEL MAGIC loudness control technology is being used by Arabic television broadcaster Al Jazeera Sports to provide automatic level monitoring across all of its 19 playout channels. Dubai-based Qvest Media FZ LLC handled the installation, as part of a project to implement a tapeless ingest, editing, and playout platform at the broadcasting centre in Qatar. The system includes 18 B46 digital dynamic processors, and Al Jazeera Sports has also installed six Junger Audio MIX4 compact four-fader mixers.
www.junger-audio.com

INDUSTRY AWARD

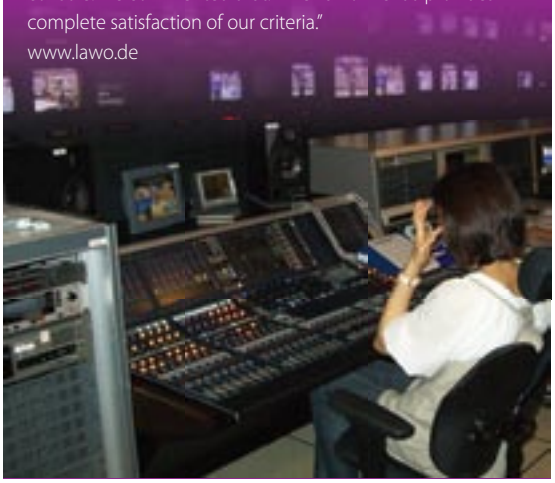
SOUND4's Voice 'L' has won the innovation trophy at this year's Satis-Le Radio show.The Voice 'L' is a livewire compatible voice processor for radios and live studios, with unique voice processor 3-bands, 192kHz audio processing engine, 4-band parametric EQ, and intuitive and tactile interface. Having watched visitors at the show interact with the Voice 'L', SOUND4's Product and Project Manager, Vincent Defretin, commented: "It is new and very rewarding, they are like children in front of a new toy. They rediscover their voice, they are excited…"
The SOUND4 Voice 'L' is available now.
www.sound4.biz

## Lawo In On Window to World

A Lawo mc266 has been installed in one of the key production studios at Arirang, South Korea's cable and satellite channel, as the broadcaster moves across to HD technology.

The 16+8+8 fader, 32-frame size mc266 is the first Lawo console to be installed at the facilities, where it will take position in Studio D of the broadcast station, where news, live talk shows, and general entertainment programmes are made. The broadcaster is the country's premier domestically-produced English-language TV network, fondly dubbed 'the world's window into Korea'.

Arirang's main audio engineer, Mr Choong-Hwan Choi, said that competition to supply the console system was tough. "We were looking for a very reliable, high quality system with an intuitive operational interface… Lawo systems have the advantage when it comes to redundancy, and the powerful DSP capabilities within the console." He commented that: "The Lawo mc266 provides complete satisfaction of our criteria."
www.lawo.de



## Riedel Gets A Sporting Chance

FOX Sports in Mexico has installed a Riedel intercom infrastructure for its studio facility in Mexico City.
The comprehensive system includes a multi-node Artist intercom system with VoIP connectivity to remote locations in the US and Argentina, and features one Artist 64 and two Artist 32 mainframes to connect various studios and the master control room. These are networked via a redundant fibre ring.

FOX Sports also chose a mix of 34 Riedel 1000, 2000, and 5000 series control panels, dependent upon the application. A Riedel Performer digital partyline intercom completes the installation by Comtelsat Mexico, Riedel's Mexican partner.

The installation allows for cost-effective integration of remote locations.
www.riedel.net


# What is MADI?

**M**ultichannel
**A**udio
**D**igital
**I**nterface

MADI is the Pro Audio Industry standard for multichannel audio and the perfect solution for the transmission of multiple digital audio channels. MADI avoids the technical problems of standard multicore cables: shortness, aging, high weight and costs, stray pick-up, cable loss, cumbersome handling.

**A thin cable transmits
up to 64 audio channels - lossless -
over distances of
up to 2000 meters!**

Two MADI cables only will interface a full 64-channel application, a stage, a theatre, or a conference hall.

Example

2 x optical cable
2 x 64 channels . up to 2000 m

Analog . AES/EBU . ADAT . TDIF

Integrating MADI solutions into an audio network not only increases more than just reliability. The setup and cabling is simple, too. Routings are remote controllable without any physical switching or swapping of connections. MADI simplifies and speeds up any configuration changes. MADI saves time and therefore costs.

RME
Worldwide Distribution
audio ag
Phone: +49 (0) 8133 / 918170

PREMIUM LINE

# MADI LIVE

All the pieces of the puzzle. Virtual sound-checking and much more.

## M-Series

High-End AD/DA Converters . Up to 32 Channels

## Micstasy

8-Channel High-End Preamp / AD converter

## NEW! ADI-6432R BNC

Bidirectional 64-Channel AES3-id converter

2 x 32 BNC . Redundant power supply

## ALVA MADI Cable Drum

4-fibre Optical Multicore . up to 300 m

## HDSPe MADI

128-Channel MADI PCI Express Card

## HDSPe MADIface

128-Channel MADI Card for notebook computers

**MADI . Made by RME.**

**ADAT on steroids or more?**

- Flexible . Affordable . Expandable
- Up to 256 channels bidirectional
- Full Bandwidth up to 24 Bit / 192 kHz
- Fibre optics connections for up to 2000 m
- Remote Control of all features via MADI
- Complete system with all kinds of converters for Analog, AES/EBU, ADAT, TDIF plus preamps for analoge and digital mics, a MADI Bridge and a MADI Router.

**Do you think that virtual sound-checks are more common now?**

"Yes, I think a lot more engineers are picking up on it now, it really can make life easier and more convenient for the band and the engineer. For me, I have been virtual sound-checking since I first got the RME PCI card versions which were loaded into a desktop. But with the RME MADIface, it is even easier to take around and to move between bands. For example on this tour, I had no production rehearsals, so I had a flat SD7 and spent the first sound-check setting up and then recorded the show. The next day in sound-check and using what I had recorded the night before, I was able to sit down and take my time and set up snapshots etc.

Of course, sound-checking bands never play as hard, have the momentum or adrenalin that they have during a live performance, and they get bored fairly quickly too. So, it is almost more beneficial to sound check using the actual show files as they are playing at full tilt, and I can sit and twiddle for as long is actually needed."

**Paul Ramsay** . FOH for The Who, Doves, Annie Lennox and Skunk Anansie

www.rme-audio.com

Engineered and manufactured in Germany

Worldwide Distribution

audio ag

www.audioag.com

NEW PRODUCT

Audio Technica has released its new MTU301 Body-Pack Transmitter. The MTU301 allows users the freedom and flexibility to transmit audio while moving anywhere within the SpectraPulse coverage area. The unit includes on/off switches, mute switch, and LEDs to indicate power/mute, and link status, as well as a battery warning. The MTU301 is the latest application in the company's award-winning SpectraPulse Ultra Wideband (UWB) wireless mic system, which offers secure wireless operation for the installed sound market. It will be available to purchase early 2011.
www.audio-technica.com

PRODUCT LAUNCH

Yamaha launched two major software products at InterBee 2010 in November – the Yamaha Console File Converter, and the M7CL Version 3.5 operating system. The Console File Converter can be used to convert file formats between Yamaha's digital mixing consoles, meaning enormous flexibility in how to deploy resources. Features include three conversion options, and parameters that exist on the target console, but not on the source console, set to default values. The M7CL Version 3.5 update offers numerous new functions that will improve workflow and response times, including new alternate functions for the selected channel and a new Outport Port Setting window.
Both products will be available from winter 2010 as free downloads from Yamah's website.
www.yamahacommercialaudio.com

## From Doctor To Rock

A new L-Acoustics K1 audio system has been supplied by ADLIB Audio to BBC Worldwide for its stage show of Doctor Who Live. With a cast including monsters, daleks, and cybermen, not to mention the intergalactic showman himself alongside a 16-piece orchestra, choir, and special effects; the sound of the show forms a complex element. However, Richard Rowley, Project Manager for XL Events, considers the new K1 system to be perfect for the job.

The L-Acoustics K1 line source system has also been on tour with Supertramp to celebrate their 40th anniversary. The system has proved versatile enough that configuration can change depending on the venues' requirements across 35 concerts. Supertramp FOH Engineer Karl Newton was delighted to learn that the band had already specc'ed the K1 system for the tour, "…great sound is their prime objective when performing live… I love mixing on K1; it's by far my favourite system now."
www.l-acoustics.com

LIVE APPLICATION

## The Show Goes On With Soundcraft Studer

A move to London's National Theatre for the Broadway blockbuster *Fela!* in November provided the opportunity for a soundscape re-work, with a Studer Vista 5 console selected as the hub of the control centre.

Tony award-winning Sound Designer Robert Kaplowitz said he had hoped to have the Vista 5 on Broadway, but was pleased to include it for the London production as it enabled them to take the show a 'step further'. He said, "At the National we are more 'in the house', and the VSP helps us bring the audience right into the show."

Also taking to the stage is the Soundcraft Si3, which was recently provided by Northern Light as part of a tender to supply 'an advanced technical infrastructure' to the new £35 million Aylesbury Waterside Theatre. It was deemed of paramount importance that sound was evenly dispersed to every 1,200 seat in the multi-cultural arts centre, and this was reflected in the choice of FOH mixing console.

Northern Light Project Manager Simon Cooper suggested the Si3, because "while retaining that analogue feel, this solution offers a lot more processing power, all built into the desk."
www.soundcraft.com
www.soundtech.co.uk

PRODUCT APPLICATION

Linkin Park have used Waves plug-ins for sound-shaping and mixing tools on their fourth studio release, *A Thousand Suns*.

Waves tools were used extensively on the album, and helped create the notable vocal effect on the hit single *The Catalyst* using the MetaFlanger plug-in.
www.waves.com

PRODUCT UPDATE

Lake has announced an update to its Lake Controller Software. The latest version 5.6 includes developments to the software, as well as firmware for the LM 26 Digital Audio Loudspeaker Processor and Lab.gruppen's PLM Series Powered Loudspeaker management products. The update can be downloaded from Lake's website.

www.lakeprocessing.com

THEATRE UPGRADE

Allen + Heath's iLive digital mixing system has been installed FOH at China's iconic Schenzhen Grand Theatre, as part of a major analogue to digital refurbishment. The top multi-purpose venue purchased two iDR10 MixRacks and the iLive-176 Control Surface through distributor Sanecore Group.

www.ilive-digital.com

PROLIGHT + SOUND

prolight+sound

Tickets for Prolight + Sound 2011 are now available. Next year's show will be held from April 6-9, 2011, in Frankfurt am Main; and will be complemented by the concurrent Musikmesse. Tickets can be purchased online at a discounted rate to door prices.
www.prolight-sound.com

# SD9

AUDIO MEDIA 2010 Gear OF THE Year

## The future is here. A compact, world-class digital mixing system at an exceptional price.

The new DiGiCo SD9 stunningly redefines what the world can expect from a compact digital mixer.

With the accompanying D-Rack the SD9 provides you with a complete, integrated system including mixing work surface, digital stage rack and CAT5E digital multicore, with the ability to simultaneously record 56 channels direct to your favourite multitrack software or DAW.

And all at a price that makes it the perfect solution for touring bands, schools, conference centres, smaller theatres and a host of other applications requiring high performance, great flexibility and exceptional performance for your budget.

STEALTH DIGITAL PROCESSING

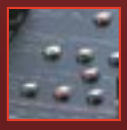
WSG READY

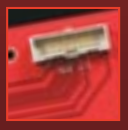
DiGiCo

www.digico.biz/sd9

DiGiCo UK Ltd. Unit 10 Silverglade Business Park, Leatherhead Road, Chessington, Surrey KT9 2QL. Tel: +44 (0) 1372 845600

Super FPGA Technology


Two Solo Busses


Waves Ready I/O

Digital Stage Rack D-Rack

8 Segment Meter Strips

Dual D-Rack CAT5E Connectors

15" Wideview Touch LCD Screen

MADI I/O for Recording

Powerful Tiger SHARCS

All-new Flexi Channels

# Show Report AES 2010

# If You Missed San Francisco... AES Convention Highlights

The recent AES convention in San Francisco was widely agreed, among exhibitors, to be a success. Expectations were low after the London AES showing and a year of economic woes, but San Francisco was a great draw, and there was no shortage of gear stories – if you could get past the Avid stand to find them, that is...

**AKG** introduced the Perception Wireless System, which comes complete with bandwidths up to 30MHz and low-current transmitters. It's designed for musicians and entry-level audio technicians. **API** introduced its new Channel Strip, which includes a 512C mic pre, 550a EQ, 527 compressor, and the 325 line driver. Each process can be switched in/out, and the compressor can be switched pre-EQ. **Audio Precision** demonstrated a new multi-tone analyser that returns 19 key audio measurements in 1.2 seconds. The multi-tone analyser is available in the v2.7 release of APx500. **Audio-Technica** launched the BP893 MicroEarset omni-directional condenser headworn (ear-mounted) microphone with ergonomically moulded earpiece and one-inch boom. It requires 11V to 52V and has a recessed HPF switch in the power module. **Avid**'s Pro Tools version 9 was unveiled, replacing Pro Tools LE in the Pro Tools software family, and integrating broad hardware I/O support, EUCON control protocol integration, and more. **beyerdynamic** launched two new variations for the MC900 series studio mics. The MC 910 and MC 950 offer new pattern options (omni and supercardioid respectively). **Chameleon Labs** introduced its new TS-1 MKII small diaphragm tube condenser mic.

Driven by newly-designed vacuum tube electronics, the MKII power supply features an adjustable tube heater voltage control. **Crown** showed VRACK, a modular amplifier management system. It features I-Tech 12000HD amplifiers, a flexible input panel, a captive suspension system, and HiQnet control.

**dbx** showed the DriveRack PA+, a loudspeaker management system with an updated library of settings, a USB connection, full-time RTA, front panel mute, faster Auto EQ Wizard, and an Auto Level Wizard. **Drawmer** unveiled the HQ, a combined precision high-quality monitor pre-amp/volume controller and DAC, designed to act as a central hub in a studio, mastering room, or any high-end listening environment. **DW Fearn** debuted the VT-12 vacuum tube 70dB microphone preamplifier, designed to accommodate the low output level of ribbon and dynamic microphones, though it can also be used with condenser microphones. **Elysia**'s showed the new xpressor 500 stereo compressor available in API's 500 series format. Features include an auto fast attack mode, switchable release characteristic, and a 'warm mode' switch. **Focal Professional** showed its new SM9 flagship three-way monitor. One of the innovations within the SM9 is the ability to switch between two-way

BE FIRST TO DISCOVER TRULY GROUND-BREAKING TECHNOLOGY ONLY AT BVE 2011
From audio and video production to delivery workflow, BVE 2011 is the event for everyone working in production, post and delivery.
Renowned for its training, workshops and masterclasses, enjoy over 180 free seminar sessions
Attend The Audio Room theatre and discover the pros and cons of compressed audio in broadcast, question the experts on recording sound and learn about 5.1
Benefit from the new radio day - Tuesday is dedicated to everything radio, from creating a programme through to the latest technology for radio broadcast
Meet and do business with over 240 exhibitors including Solid State Logic, Calrec, Audio Technica, Sonifex, Sennheiser, HHB, Soundfield, Lawo, HarmanPro/Studer, Prism Sound and SADiE
15-17 FEBRUARY 2011
EARLS COURT 2, LONDON
WWW.BVEXPO.CO.UK
PRIORITY CODE – EBAM1
MEDIA SPONSOR Broadcast
ENDORSED BY iabm
SHOW PARTNERS Anna Valley
REGISTER TODAY FOR FREE ENTRY WWW.BVEXPO.CO.UK/REGISTER

and three-way operation. **Grace Design** introduced the m903 Reference Headphone Amplifier. It's a stereo reference headphone, amp, DAC, and stereo monitor controller in a 1U, half-rack enclosure. **iZotope** announced Nectar, a new plug-in that includes a complete vocal processing toolkit, including pitch correction, breath control, compressors DeEsser, Doubler, Saturation, EQ, Gate, Limiter, Delay, and reverb modules. **JBL Professional** showcased its PRX600 active portable loudspeakers. They use JBL's Differential Drive speaker technology, dbx Type IV limiting, and Crown class-D amplifiers. **JoeCo** showed the Blackbox Player, a 1U device for replaying backing tracks live, amongst other things. 24 channels of 24-bit/96kHz audio can be controlled with front panel, footswitch, keyboard, or MIDI commands.

**Korg** released its AudioGate software, which enables the realtime playback of DSD/SACD files on any computer system. It also demonstrated proof of concept multi-track DSD software. **Lexicon** launched the PCM92 stereo reverb/effects processor. It features 28 mono and stereo reverbs, delays, and modulation effects, flexible routing configurations, and over 700 presets. **Lynx** released the LT-USB USB 2.0 L-Slot interface for the Lynx Aurora 16 and Aurora 8 converters. This add-on card provides up to 16ch I/O of 24/96 or eight channels at 192kHz. **Millennia Music & Media Systems** showed its new 500-series compatible, single slot, HV-35 mic amp. It features an inst. input, gain boost for ribbon mics, 80Hz HPF, phantom, -15dB pad, and polarity flip. **Neumann** showed the first result of it's assimilation of Klein & Hummel proffessional monitors with the KH120 – just the beginning of the Neuamnn assault on the monitor market. **PMC** announced the shipping of its new AML2 Active Reference Monitor, which inherits the AML Series design and adds an EQ tilt, an enhanced power supply, and a revised cabinet structure. **RTW** displayed the new TouchMonitor series of professional audio signal metering products. They all feature hi-resolution touch-sensitive screens and a redesigned GUI for ease of use. **Sanken** showed the new CS-2 compact shotgun microphone with the company's proprietary rectangular diaphragm and a new high boost switch, which compensates for HF attenuation due to windscreens. **Shure** launched its new SE315 Sound Isolating Earphone, a single driver earphone featuring full a detachable cable. It's available in clear or black versions. **Solid State Logic** presented Nucleus, its new DAW controller and SuperAnalogue audio hub for professional project studios. Also new was an updated AWS console, and the MADI-X8 eight-port MADI router system. **Soundcraft** launched the Compact Stagebox for Vi and Si consoles. Standard provision is 32 mic/line ins, eight line outs, eight channels of AES/EBU out, and two expansion slots, in 4U. **TASCAM**'s DR-680 portable recorder has been updated to version 1.20, adding two modes for recording with mid-side microphones). **Telefunken** launched the new CU-29 'Copperhead' R-F-T series mic with vintage New Old Stock (NOS) tube; the AR-70 large diaphragm tube mic, and the new M80 wireless dynamic capsule head for handheld transmitters. **Universal Audio** launched the new 4-710d pre-amp, which incorporates four channels of Tone-Blending Twin-Finity Preamps, 1176-Style Compression, and A/D Converters. **Vintage King Audio and Retro Instruments** debuted the Retro Powerstrip Recording Channel, a channel strip designed to capture the tone of a tube mixing desk.

whatsupuk@audiomedia.com

# A Very British Take

KEVIN HILTON addresses the cynicism that still surrounds work at MediaCity UK, despite the impressive promises that progress seems to be hinting at.

There's a general view that the British like to think the worst about something before it happens. But there is the opposite side of the national character that will support something regardless of whether it's needed, popular, or even possible.

Both these positions have been taken over MediaCityUK (MCUK), the high-tech radio, TV, and educational town-within-a-town being built at Salford Quays in Greater Manchester. The developers of the site, Peel Media, have a vision of a self-contained city with broadcast studios, production, and post-production facilities, offices, apartments, shops, and a hotel, all served by a new Metrolink tram station.

The BBC shares this belief in the project, which was initiated largely to create a new northern headquarters for it. The broadcaster has already taken a substantial proportion of floor space at the location, in readiness for moving BBC Children's and Learning, BBC Sport, Radio Five Live, and parts of BBC Future Media and Technology to Salford by the spring of 2011. The BBC Philharmonic Orchestra will also leave its present home at New Broadcasting House on Oxford Road, Manchester, to move into a purpose-built studio at MCUK.

Another believer is the University of Salford (UoS), which will move its media undergraduate and post-graduate courses to the Quays.

The naysayers take the view that until commercial broadcast companies committed to Salford Quays it would not be a wholly convincing proposition, although this overlooks The Pie Factory film sound stage complex, a joint venture between Peel Media and local post-production facility Sumners.

## Moving Towards Validation

Some necessary validation came in August when betting industry TV programming and data provider Satellite Information Services (SIS) announced that it is moving its London facilities to MCUK from now until 2013. These include SIS's production, studio, play-out, teleport, engineering support, and master control room departments.

This new relationship was further cemented in November when SIS and Peel Media formed a joint venture to run MCUK's studio, post-production, and technology support facilities. It will also work with the BBC, UoS, and "other media partners" to develop "new technologies and services".

On September 14, the BBC Philharmonic Orchestra held a test concert in the big orchestral room. This is located in the commercial studios complex, Block D, which also contains seven HD/5.1 TV studios and a multi-purpose audio studio (MPAS).

Sound suites for the big production studios – A, B, C, and D – feature Calrec Audio Apollo consoles with Hydra 2 routing. Studios E and G will have Artemis desks, but what will go into Studio F is still under review.

> "The naysayers take the view that until commercial broadcast companies committed to Salford Quays it would not be a wholly convincing proposition..."

The test concert in the Philharmonic studio ran for 90-minutes, with breaks to adjust acoustic panels, which gave everyone the opportunity to hear how the room sounds. The Philharmonic control room and MPAS both house new Studer Vista 9s, with Geithain monitors in the former and a Genelec rig in the latter. MPAS will be used for a variety of productions, including radio drama, for which it has a staircase, various doors, different floor surfaces, and a dead area. The official launch of these facilities will be in Spring next year.

The fit-out of the orchestral room and MPAS was sub-contracted to IPE, with acoustics for both designed by Sandy Brown Associates. The lead systems integrator for Block D is TSL. It is almost certain that TSL will also be working on the fit-out of the UoS facilities but this has not been confirmed as negotiations were continuing at the time of going to press.

The University will have four floors at MCUK, housing HD TV and radio studios, digital media and performance labs, post-production suites and dubbing theatres. The facilities will be used by a range of students, including those on the BSc (Hons) Audio Technology, BSc (Hons) Professional Sound and Video Technology, and MSc Audio Production courses.

## Everyone's A Cynic

All very impressive but – in typically British fashion – cynicism remains. What about the media organisation that is much more a part of Manchester than the BBC will ever be? Granada Television has been reticent to commit itself to MCUK, despite being linked to the place early on, but, again, there are indications that this could change.

Rumours are circulating that Granada will take some space at Salford Quays and may even do it the big honour of moving some production of *Coronation Street* to the site. The soap celebrates its 50th anniversary this year and is a flagship production for the broadcaster.

For those into conspiracy theories the removal of the famous red "Granada TV" sign on the roof of the Quay Street broadcast centre gave credence to the rumour that the company was preparing to move. Not so, it seems. A statement explains, "During routine maintenance of the Quay Street building the roof signage and its fixtures were found to be extensively corroded. As a result, the signs were taken down for health and safety reasons."

On the general subject of future accommodation ITV issued this comment: "We are examining a number of options regarding ITV's Manchester base to ensure that we have a fit for purpose production complex in the North West." Sources add that a deal to move to MCUK has not been done and there's nothing more to say right now.

Whether Granada moves in or not, every day MCUK is looking less like a building site and more like a new age media centre. Whether that will satisfy its detractors is something else entirely.

Loudness Metered - Loudness Managed

aspenmedia

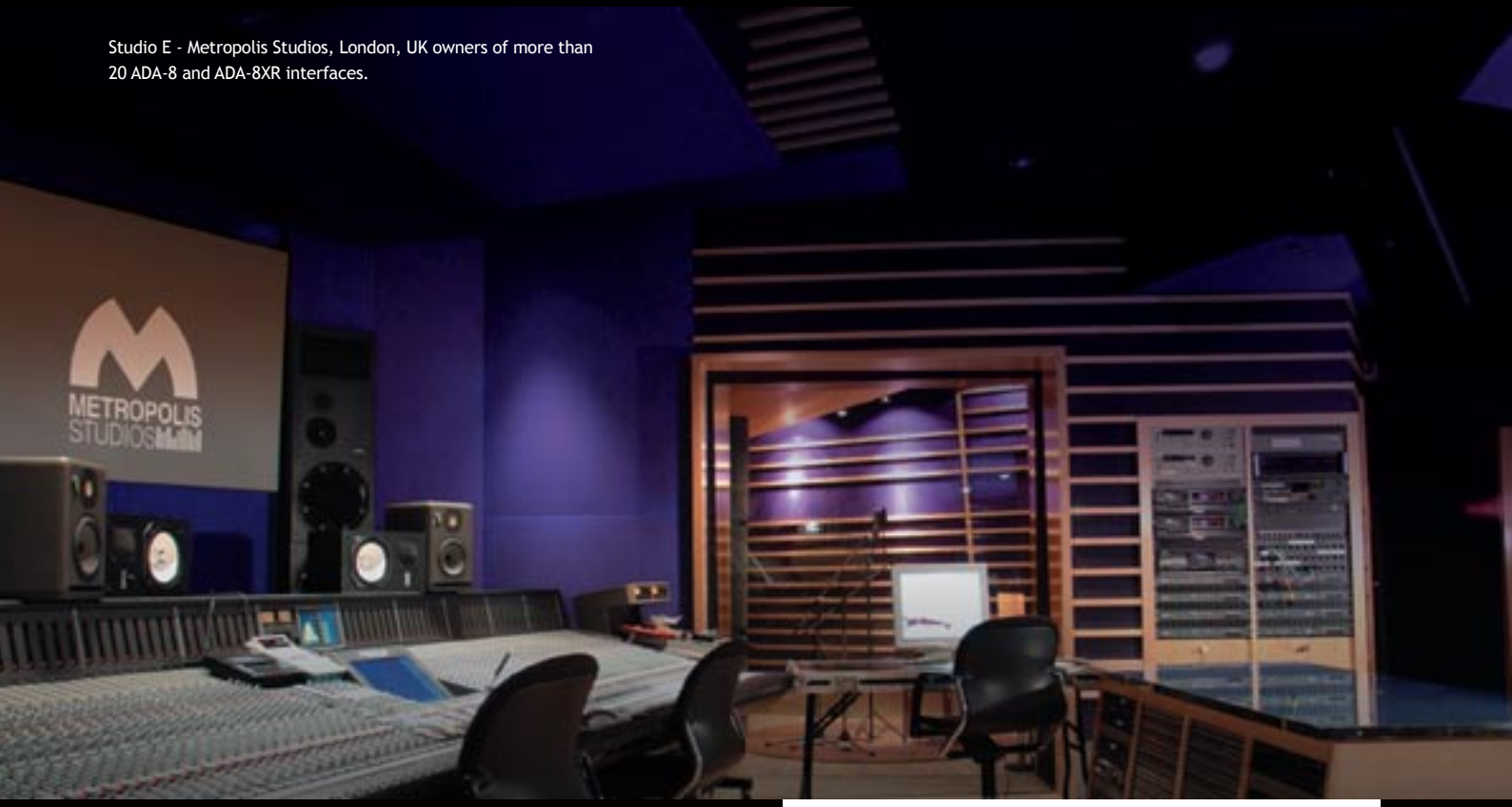
RTW Metering Loudness

Jünger Audio Managing Loudness

For simple and effective answers to your loudness issues call Aspen Media

01296 681313 or visit www.aspen-media.com

Prism Sound




Studio E - Metropolis Studios, London, UK owners of more than 20 ADA-8 and ADA-8XR interfaces.

# RECORD | MIX | MASTER

**Prism Sound** has been supplying successful high quality analogue and digital studio products for 22 years and has continued to lead the way in technical excellence and personal customer service.

The near fanatical loyalty of **Prism Sound** users is a testament to the success of its product range. Whether it be multi-track recording, mixing, cd-mastering or on location Prism Sound products deliver robust, reliable performances every time.

## ORPHEUS
Professional FireWire audio interface

## ADA-8XR
Pro Tools™ modular interface

## Maselec MMA-4XR
4 channel microphone pre-amplifier

**Contact us now to arrange YOUR demo**

**sales@prismsound.com www.prismsound.com**
**UK +44 (0)1353 648888 USA +1 973 983 9577**

# The 2010 Commonwealth Games

**For live reinforcement and worldwide broadcast purposes, this year's Commonwealth Games in Delhi featured the latest in audio technologies, reports JIM EVANS.**

Bringing together more than 50 nations from around the world, the 2010 Commonwealth Games in Delhi, India, opened its 12-day athletic competition with a large, multi-array JBL VerTec line array system powered by Crown I-Tech HD amplifiers to support the opening ceremonies.

The system successfully filled the Nehru Stadium in New Delhi, occupied by more than 60,000 spectators and nearly 5,000 athletes. Audio production companies Norwest Productions (Australia) and Sound.com (India) collaborated to implement Auditoria's sophisticated event system design in the field.

Scott Willsallen of Auditoria, having already completed major games ceremonies such as the Athens 2004 Olympics, Doha 2006 Asian Games, and the Melbourne 2006 Commonwealth Games, was contracted by the organising committee for the Delhi 2010 Commonwealth Games to design and manage the audio system for both the opening and closing ceremonies.

Twenty-five distributed JBL VerTec arrays lined the stadium to ensure everyone from the floor seats to the upper levels fully enjoyed the entertainment, which included performances from traditional Nagada drummers, who drummed to the beat of the countdown to the official start of the event. Eight of the arrays featured three JBL VT4889 full size line array elements, and 17 contained three VT4888 mid-size line array elements, with each also including a full size VerTec arrayable subwoofer.

One hundred and two Crown amplifiers, including 92 I-Tech HD amplifiers, powered the JBL VerTec rig. Harman's HiQnet System Architect system software was used for configuration, remote control, and monitoring of the system.

Norwest (Sydney, Australia) teamed with a regional, Mumbai-based sound production company, Sound.com, to supply the entire audio package and crew for the Delhi games' opening and closing ceremonies.

"The VerTec V4 DSP tunings are excellent. The only additional tuning we had to do was some minor notch filtering to tidy up the response in the venue," stated Willsallen. "It was all very subtle filtering. If it came down to it, we could have run the show very successfully without any additional EQ filtering."

On the field of play, 25 JBL SRX712M speakers were used for the performers' monitor system, while 32 JBL CBT70J column speakers and JBL SRX718S subwoofers were used to ensure that athletes on the field could experience the event's sound. On the main stage, JBL VRX915M monitor wedges were utilised for musical performances.

"Norwest Productions and Sound.com combined their resources and skills to deliver an excellent audio system, which met the performance requirements of my design and worked within the project budget," concluded Willsallen.

All the action from track and field was broadcast throughout the world – in high definition for the first time – over digital fibre networks using more than 100 Optocore devices. The network was commissioned by SIS Live who were awarded the multi-million dollar contract to supply production and coverage facilities and services to the Games.

Working with Zoom Communications, South-East Asia's largest broadcast services company, coverage was provided for 17 different sports and outside races across 12 venues in Delhi.

SIS Live and Zoom Communications both rented large consignments of Optocore digital and analogue network interfaces from UK sales and hire production company, SSE Audio Group.

In addition SSE provided SIS LIVE with a large number of Yamaha YG2/YS2 modules and 26 Yamaha LS9-32 consoles; the cards were used in conjunction with both these, and the Yamaha M7CL digital consoles that have also been deployed. Optocore's multiple console emulation mode, allowing up to four different consoles to control various devices on an Optocore network, is unique, since they are the only network manufacturer to offer this facility.

Alongside the Yamaha consoles, Optocore devices interfaced with the main stadium's Lawo mc56 consoles to provide an entirely redundant audio network for all broadcast audio and monitoring.

Said SSE Managing Director, John Penn, "The original enquiry from ZOOM Communications for a large quantity of Yamaha LS9s with Optocore interfaces, was directed to us because in addition to hire, we have the added advantage of being a sales organisation. No other rental company has this level of stock."

Stated Optocore's International Sales Manager Mike Case, "We are delighted to be associated with the XIX Commonwealth Games. In addition to the fact that this is one of our largest consignments, we are gratified that these prestigious broadcast production companies worked together on a common Optocore backbone to boost signal transport and maximise workflow."

### MEDIA MATTERS

**Indian broadcasting has flourished since state TV's monopoly was broken in 1992. The array of channels is still growing.**

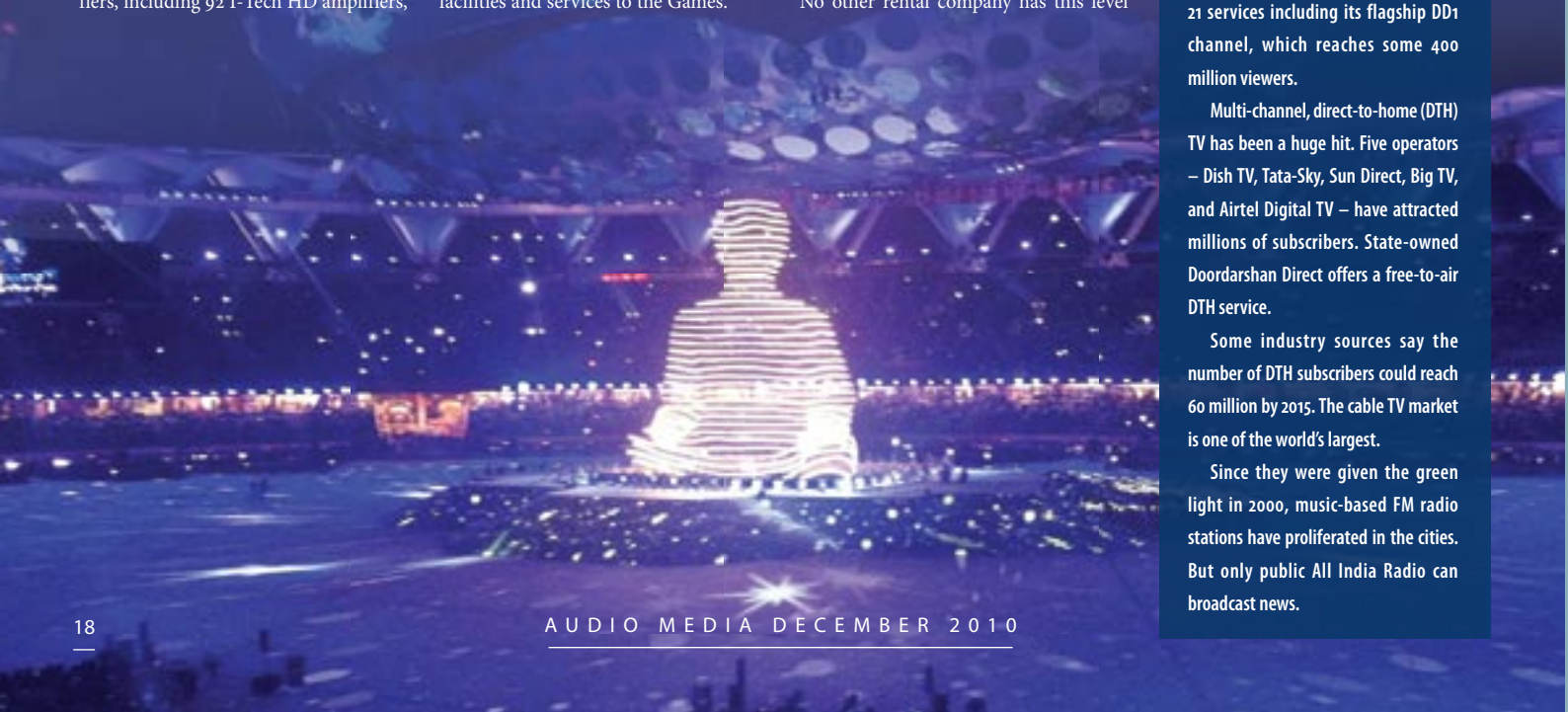
**Private cable and satellite stations command large audiences. News programmes often outperform entertainment shows. Many 24-hour news channels are up and running, and more are planned.**

**Doordarshan, the public TV, operates 21 services including its flagship DD1 channel, which reaches some 400 million viewers.**

**Multi-channel, direct-to-home (DTH) TV has been a huge hit. Five operators – Dish TV, Tata-Sky, Sun Direct, Big TV, and Airtel Digital TV – have attracted millions of subscribers. State-owned Doordarshan Direct offers a free-to-air DTH service.**

**Some industry sources say the number of DTH subscribers could reach 60 million by 2015. The cable TV market is one of the world's largest.**

**Since they were given the green light in 2000, music-based FM radio stations have proliferated in the cities. But only public All India Radio can broadcast news.**



# The Jawaharial Nehru Stadium

With a 60,000-plus seating capacity, Jawaharlal Nehru Stadium in New Delhi was the biggest venue used for the October 2010 XIX Commonwealth Games. The stadium hosted athletics events and, most importantly, served as the venue for the Games' opening and closing ceremonies. The stadium is equipped with an audio system from Electro-Voice.

The EV loudspeaker spec at Nehru Stadium comprises 132 customised XLC127DVX (line-array), 120 Sx300PI, 300 EVID 6.2, and 60 ZX5-60PI surface-mounted systems, all driven by a combination of 135 P3000RL and TG amplifiers to deliver an average of 107dB and a peak of 115dB. The entire system is remote-controlled and supervised from a single laptop in the stadium control room, all via EV's IRIS-Net software platform. The system's Auto Gain Control increases or decreases the sound levels consistent with changes in the level of ambient crowd noise.

All external speakers are manufactured to exceed the IP55 standard for weather resistance, while the system's speech intelligibility surpasses the approved standard of 0.55 RASTI.

**VITAL STATISTICS – INDIA**

| | |
|---|---|
| FULL NAME | Republic of India |
| CAPITAL | New Delhi |
| MMOST POPULATED CITY | Mumbai (Bombay) |
| POPULATION | 1.2 billion (UN, 2010) |
| MONETARY UNIT | 1 Indian Rupee = 100 paise |
| MAIN EXPORTS | Agricultural products, textile goods, gems and jewellery, software services and technology, engineering goods, chemicals, leather products |
| GNI PER CAPITA | US $1180 (World Bank, 2009) |
| INTERNET DOMAIN | .in |
| INTERNATIONAL DIALLING CODE | +91 |

# Allen & Heath Hits Road

Allen & Heath's Indian distributor, Sun Infonet, recently completed a series of training sessions in three key locations – Bangalore, Ahmedabad, and Calcutta – targeting customers who are ready to move from traditional analogue to digital solutions.

"I thought there was a very good knowledge of digital and IT solutions, and several engineers who had operated competitor digital consoles were keen to come and compare their experiences," comments Allen & Heath's Product Manager, Leon Phillips.

The seminars were split into three areas – ZED, GL, and iLive/iDR – attracting over 100 attendees selected from Sun Infonet's customer base comprising live PA owner/operators, dealerships, and installation contractors with broadcast experience.

"Digital mixing is in its infancy in India," explains Sun Infonet's Director, Neeraj Chandra. "However, enthusiasm is high, particularly in the territories we were targeting with our roadshow, and customers were very keen to get their hands on iLive – as well as Allen & Heath's other new products – to try them out for themselves. Sales growth for Allen & Heath consoles in India over last two years has been phenomenal, and the roadshow demonstrates Allen & Heath's commitment to servicing its Indian customers."

Tel. +44 (0)20 8940 6077
Fax. +44 (0)20 8948 8326
The Nagra LB two channel recorder - editor is available for hire from Richmond Film Services for £15 a day. If that doesn't fill you with festive cheer then what will?
Seasons Greetings
www.richmondfilmservices.com

# Here Comes The Swag!

**Wipe away those gloomy frowns, pack away the barren and drooping tinsel, and discard those unwanted socks with the flashing reindeer nose embellishment – we know what makes an audio pro happy at Christmastime. So, banish the bleak mid-winter and let them bells ring out: SWAG is back!**

## A Wisse Choice

Wisseloord Studios is 'a new concept with an old soul' (or so says the website). Based in Hilversum, in the Netherlands, Wisseloord is being rebuilt and re-styled to the highest standards, and will re-open brighter and more full of creative enthusiasm than ever before during 2011.

And if the quality of the two long-sleeved t-shirts Wisseloord Studios kindly donated to our SWAG pile is anything to go by, the promise of a top-notch facility is not to be taken lightly. Warm and cosy, with perfectly embroidered detailing on the sleeves, these tops come top of our picks of decent stuff to wear this winter. A wisse wardrobe choice for an audio loord.

**www.wisseloord.nl**

Despite these times of drab austerity, a rocky outlook for the economy ahead, the forecast for a miserable and grey Christmas, expectations for a dry turkey and soggy spattering of spuds… don't be disheartened. Santa's a defiant and persistent red-swathed fiend if nothing else, and has managed to swindle, bribe, provoke and cajole a whole heap of audio goodies out of manufacturers from right across the industry; and we're wrapping them all up for one lucky *Audio Media* reader to enjoy in time for the (much improved) new year. Okay, we're blaming Santa for the swindling and bribing, but we at *Audio Media* are taking full credit for the provocation and cajolement of at least a few of these donations.

Empty pockets and cash-strapped measures that seem to pervade as far as the North Pole aside, manufacturers have once again generously donated goodies to fill our Santa sacks of SWAG. There's no Scrooges in the offices this lot came from, because among our horde is a collection of t-shirts, polo shirts, fleeces and jackets – in a one-tone suits-all wardrobe that Dior would be proud of, i.e., black – caps, mousemats, mugs, and USB sticks. We've also got pens, notebooks, stickers and balloons, cable ties and key rings, bottle openers and bags. There's also a few more unusual items featured – but in short, it's a sack of goodies guaranteed to please even the hardiest Christmas humbug. We'll even chuck in some extra tinsel, if you like.

## Win A Santa Sack of SWAG

To win a Santa sack full of SWAG isn't all that difficult. You don't even need to put down that glass of mulled wine, or rouse yourself from your armchair stupor. There's no challenge, no trick, not even a necessity to move a finger (well, maybe just one to type with). All you've got to do is answer one delightfully easy question (below).

All correct answers will be placed in our special red and white fluffy *Audio Media* hat and a lucky winner drawn at random. A big box of SWAG will then be winging its way to said winner – via sleigh, of course – before you can wish happy Christmas to all (and to all a good night).

That's all there is to it. It is Christmas, after all, and we wouldn't like to make things too complicated – we certainly don't want to be tucked behind our desks New Year's Day marking essays about the impact of brandy-filled mince pies on the modern audio facility.

So, chomp down on those mince pies and be darned to the consequences (there's some XL-sized t-shirts in the SWAG bundle after all)… the one and only question you need to peruse this season is:

**What was the name of the family featured in *The Sound of Music*?**

(see page 42 for our *Sound of Music* feature)

Send your answer to schwaaag@audiomedia.com (that's three 'a's in schwaaag), along with your name, address, and tel no, by January 1, 2011 – and good luck!

RULES:

1. If you work for *Audio Media*, you can't enter.
2. The deadline for entries is January 1, 2011.
3. E-mail your answers to: schwaaag@audiomedia.com
4. The Editor's decision is final.

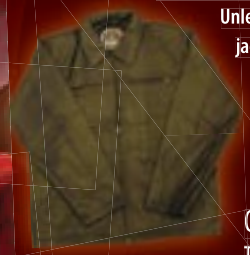
## SWAG Highlights

**These are just a few of our top unusual picks from this year's stash:**

### Auralex Chopping board

Incase you're stuck for somewhere to chop a bit of fruit for your cocktails this season, Auralex has thoughtfully sent us this neat bamboo chopping board. Solid, smooth, and splinter-free, it's not only made from sustainable materials, but is totally unique and guaranteed to provide a perfect cutting surface for your lemons every time.

### AKG leather jacket



Unleash your inner bad-boy with this black leather AKG jacket, with thanks to Sound Technology. Hard-wearing and lightly padded, with deep pockets and a tough zip-front – now there's no excuse not to run riot in the studio in the new year. Black is back, and this year it's bad to the bone.

### Olympus Hand Sanitiser

Those mean, miserable little beggars get everywhere – sneaking round the buffet table, creeping under the mistletoe… That's right, it's germs. They'll delight in passing on the winter lurghy as quick as you can reach for a tissue. This Christmas, Olympus has sought to banish the sniffles with this pocket-sized hand sanitiser. So now there's no excuse not to hygienicise your mince pies, and Christmas cracker, and – well, just about everything really.

### A Bag for all Outfits

For the busy man or woman about the world, we've got a bag for every occasion. Firstly, the Olympus PEN bag, a bit funky for your shopping trips perhaps, and uniquely crafted from images from the company's PEN video. Very nice, we think.

Second up is a limited edition Crumpler laptop bag from Avid. It's top quality and well-made with plenty of pocket space, and perfect for carting your laptop around in style.

Third is the Turbosound sports bag – or weekend bag. It's huge, it's enormous. You could probably fit your Golf or Hockey sticks in it at a bit of a squeeze. Infact, if you did a different sport every day of the week, there'd probably be space in here to carry kit for all of them.

There's also two more bags to complete your week, with thanks to Røde and Source Distribution (PreSonus).

**A very big 'thank you' to all the manufacturers/ distributors who so generously donated SWAG for our competition, so here's Christmassy greetings and thanks to:**

AEA Mics • Allen & Heath • API • Auralex • Audio-Technica • Avid • DACS • DPA Mics • eMerging • JBL • JoeCo • Korg UK • Meyer Sound • Midas/Klark Teknik • Novation • Olympus • Optocore • RANE • SADiE • Sonic8 • Sonifex • Sonnox • Soundcraft Studer • Sound Technology • Source Distribution • Source Elements • SSL • TC Electronic • Telos-Omnia-Axia • TL Audio • Turbosound • Wisseloord Studios • Zaxcom


Prism Sound Headline Sponsors

PrismSound

THE original 3rd party Pro Tools™ interface

The **ADA-8XR** has become THE converter of choice for leading facilities and artists around the world, and when Mark went looking for an interface to equip his British Grove facility he discovered there really was only one choice.

The **ADA-8XR** has been designed without compromise, delivering unrivalled performance and flexibility. The modular construction offers users 16 A/D, 16 D/A or 8 A/D plus 8 D/A channels, so any system configuration can be accommodated. Interface options include Pro Tools™, AES, FireWire, S/PDIF and DSD modules, ensuring its ability to excel in any popular workstation. Its unrivalled performance up to 24 bit 192kHz ensures that for the discerning user, there really is only one choice.

**Why not CALL NOW to arrange your demo.**

ADA-8XR

Pro Tools™ modular interface

other modules available AES • FireWire • DSD

sales@prismsound.com www.prismsound.com

UK +44 (0)1353 648888 USA +1 973 983 9577

Pro Tools™ is a trademark of Digidesign, a division of Avid Technology Inc.

**The classic British ribbon microphone builder unveils its first stereo model: a great yet 'odd bird' worthy of investment, says ROB TAVAGLIONE.**

# COLES 4050

## Stereo Ribbon Microphone

As the increasingly interesting ribbon microphone market reaches full maturity, we will soon see its true saturation: with products at every price point offering every single available feature to satisfy every imaginable need. Case in point: the new 4050 from Coles, a unique product from the distinguished British firm with a history of making robust, future-classic ribbons; Coles' first stereo mic is an odd bird, filling a narrow, but potentially deep, niche. File this mic under Ribbon>Pro-Grade>Passive>Stereo ... with a (magnetic) twist.

### Features

Yes, the 4050 is a stereo ribbon mic, but I can't help but think of it as 'dual mono ribbon', with stereo linking: think of it as you do your favourite dual mono compressor. As such, you can use the 4050's two transducers as completely separate mono mics, each side with its own superb shockmount, on separate sound sources; in a widely spaced stereo pair; or, as primarily intended, connect the two mics, via strong magnets on the included two-sided shockmount, swivel their ribbon elements to precisely 90 degrees apart (with the helpful calibration marks on the mounts), or vary to taste. Achieve some Blumlein or M/S placement in a neat, tidy, and compact package that is very easy to aim and place. Cabling can be routed with the 4050 kit's enclosed plastic cable clips.

Speaking of the kit, it includes the 'two halves' of the 4050, one stereo shockmount, two protective pouches, two aforementioned cable clips, and a plastic carrying case (some 4050 distributors are encouraging users to buy a second shockmount, not normally included in the package, and I couldn't agree any more; for maximum versatility as described above, it's a must). The 4050 largely uses the same guts as the Coles 4040, so you'll find extended frequency response of 20 Hz-20 kHz, 300Ω impedance, and less than one percent distortion at 125dB SPL.

### In Use

I began my 4050 testing with the kit configured as a widely spaced pair on drums via Earthworks 1024 pre-amplification. I placed each side of the 4050 about three feet back from the kit; aimed at ride and hat, respectively; and at about 90 degrees and seven feet apart: I was totally impressed. The results were wonderful kick depth, gutsy punch on the snare, toms all popping out, and cymbals nicely tamed, yet plenty bright.

Top end on the 4050 is definitely extended here as compared to typical/standard ribbons I regularly use, but nowhere near approaching shrillness; its sounds are just sweet, smooth, and oh so EQ-able. Transients were just right: totally defined, but lightly corralled, just like you'd expect from a Coles ribbon. Serving as overheads in Blumlein (via Grace m801 preamps), the 4050 is great; you can keep them all woody and strong through the low mids, or notch them approximately 4dB at 200Hz, and add 2dB at 10kHz, and you'll swear you're hearing SDCs that have been to the gym! On stereo drum room, I couldn't go wrong with this 4050 kit, either. One side at six feet behind the kit and the other out front is lovely; just strap on an 1176 (or 1178) and you have the easy cure for an anaemic drummer.

On vocals, a 4050 side behaved like most passive ribbons do: sensitive to plosives, resistant to sibilance, graceful on hard consonants, and helpful with harsh frequencies and dynamic peaks. There was no audible difference between the front and rear lobes, and side nulls were smoothly transitioned with nice off-axis pleasantness. With a pop filter and some adept "working the mic" skills, a seasoned vocalist can lean in for some sexy proximity effect and back off for some room and air on crescendos; that's a dynamic versatility that condensers do capture, but 4050 does so with more musicality. You'll do best with thinner voices that need some body, as baritones can get a little murky and will likely need some low mid scooping and high-end sweetening.

On piano, I heard the 4050 in a whole new way. I tried a Blumlein pattern (with Grace m801s) about three-and-a half feet out from my Yamaha upright and loved the soundstage (nicely alive with animation, depth, and imaging), but heard way too much 200 to 400Hz and not enough harmonics on the high end. After EQ (notching out the 350 stuff and shelf boosting the top) it all became much nicer, but my clients still couldn't find enough excitement in the 4050 and we went with condensers. Conversely, for solo piano the 4050 would be just what the doctor ordered, especially after a little low/mid clean up. The 4050 is quite sensitive to preamp impedance – as testing with my Manley TNT preamp's multiple settings proved, showing sensitivity, noise, and EQ differences – so that may be a way to milk exactly the tone one needs out of such a sensitive application.

With care, acoustic guitar also yielded good results. In Blumlein with AMS-Neve 4081 preamplification, the bottom end was super-thick and weighty; low mids were a bit overbearing at about 250Hz; high mids were a little subdued; and top end was smoothly flattering, if a little softer than reality. In the Mid/Side mode, my guitar sounded even better, with improved bottom end definition and more excitement up top plus a gorgeous (and 'manipulate-able') stereo image. I tried the good old L-C-R thing on acoustic guitar, too, with an Avantone BV-1 and a Berliner U77 getting sparkly top end L/R, with the 4050 capturing resonant lows and holding down the bottom at Centre, gleaning fantastic results.

### Summary

I've extensively used the Coles 4040 ribbon microphone before now, and it sounds absolutely great. The 4050 sounds nearly identical to me, and it's literally twice the mic! It's also much smaller, lighter, and way easier to use in stereo applications with its nifty magnets, easy rotatable elements, and superb shockmount. Add its ability to separate into two mono mics and you have a no-brainer here... unless the cost is just too much to justify. But that breaks down to $1,250 list, per mono mic; consider that and the $2,500 list price isn't so bad, as you also gain a stereo Blumlein, stereo M/S and spaced stereo tool with the durability and the pride gained by investing in a Coles product. For those reasons, the 4050 is what I confidently call a good deal. AM

**INFORMATION**

£ **GB£637.50, matched pair GB£1,180.00 (exc.VAT)**

Ⓐ **Coles Electroacoustics Ltd., Pindar Road, Hoddesdon, Hertfordshire, EN11 0BZ, UK**
Ⓣ **+44 (0) 1992 466685**
Ⓦ **www.coleselectroacoustics.com**

**THE REVIEWER**

ROB TAVAGLIONE owns and operates Catalyst Recording in Charlotte NC.
rob@catalystrecording.com

# THERMIONIC CULTURE ENGLAND

## ROOSTER DUAL VALVE PRE-AMP

*"I ABSOLUTELY love The Rooster! The ATTITUDE control with the choice of triode or pentode is what makes the unit something special. Who needs compression when you have distortion?"* **Producer/Engineer Peter Katis, Interpol, Longwave**

## PHOENIX S/C STEREO VALVE COMPRESSOR

**The best sounding stereo valve compressor just got better, additional side chain filters for optimum stereo bus work**

## FAT BUSTARD VALVE MIXER

**14 Channel Valve Summing Mixer With Master EQ, Stereo Width/Depth & Attitude**

*"I adore this box, my track counts are getting smaller whilst my sounds are getting heftier and deeper"*
**Mike Crossey - Engineer Producer working on the new 'The Enemy' album.**

**International Distribution by** UNITY AUDIO LTD

**Tel: UK +1440 785843 Fax: UK +1440 785845 sales@unityaudio.co.uk www.thermionicculture.com**

**Stocking Dealers include; Funky Junk, London 0207 609 5479 KMR Audio, London 0208 445 2446**
**StudioXChange, Herts 01462 677333 Studio Care, Liverpool 0151 707 4545**

**FREE FROM SOLID STATE ADDITIVES 100% FULL FAT AUDIO CONTENT**

GET CULTURED

**The magic of the Portico Series continues with the Portico II. SIMON TILLBROOK takes the new unit to audition whether it will uphold the great family name.**

# RUPERT NEVE PORTICO II

## Rack-Mounted Channel Strip

The Rupert Neve Designs Portico II is a 2U channel strip with mic/DI preamp, equaliser/de-esser, and compressor sections. It has the familiar RND layout of functions and bulletproof build quality, with much of the internal signal path based on the Portico 5088 console. ±36 volt power rails allow higher gain levels and headroom before audible distortion is evident.

### The Grand Tour

The rear of the Portico II has XLR inputs for both mic and line singals. These are a balanced 'TLA' (Transformer Like Amplifier) design accepting a maximum +25dBU input signal level. The line output XLR of the Portico II is based on the output stage of the 5088 console. This is a balanced and floating high voltage discrete Class A output that can deliver up to +25dBU.

Link TRS sockets allow you to connect two or more Portico units together, if desired, and side chain insert TRS sockets are available for use with the Portico II compressor section.

There are also DI instrument In and Thru TRS sockets on the front o fthe unit – a feature seen on many standalone DI boxes, but rarely on such channel strip units.

This first (mic pre) section has two input gain controls. The large control is a 12-step rotary, with 6dB per step (0 - 66dB). The small (Trim) control gives ±6dB of continuous fine-tuning, and is the only adjustment available when the 'line' switch is engaged.

48V phantom power and phase reverse switches are provided, along with a mute switch to cut the preamp output overall. Like all other switches on the Portico II, with the exception of the power switch, they are illuminated, making your setup easily visually referenced.

The Portico II has a Bessel (most linear phase response), 20Hz to 250Hz HPF with a 12dB/octave attenuation. There are switches to either place the filter in your signal chain after the preamp stage, or onto the compressor sections side-chain input.

The main four-band EQ section can be switched wholly in/out or in LF, LMF/HMF, and HF sections. It can also be placed pre or post the compressor section. The HF and LF EQs have four fixed, stepped, frequency selections each, in shelf or peak mode. The two mid sections have swept frequency and Q controls. The HMF frequency selector is also used as a reference for the de-ess function. This is a new Portico feature based on the Portico II limiter and has its own decated Off-Max control.

This is a fabulous compressor on the Portico II, with a comprehensive set of controls and features, most of which are standard compression fare. Two, however, are worthy of closer scrutiny. First, you get to switch between RMS level sensing mode (attack and release follow average signal level) and Peak mode (attack is a very fast 0.1ms). With this mode, in particular, you can then use the handy Blend rotary control to balance the original signal and the aggressively compressed signal as per parallel compression.

Second, you get a button to switch between Feed Forward (FF) and Feed Back (FB) compressor modes.

FB is the mode associated with vintage-type units where the signal after the gain changing element (such as a VCA) is what dictates the attenuation. Feed Forward mode uses the signal before this gain stage to control attenuation.

FB tends to be described as delivering a smooth sonic feel, where Feed Forward tends to be more aggressive, with a pumping feel.

Finally next to the 16 segment gain reduction and output peak meters of the Portico II, we have a switch that selects either Silk or Silk+ modes, with an associated Texture rotary control that determines the amount of the sonic shaping introduced to the signal.

Silk adds some subtle vintage distortion to the signal, with a focus on lower mids, while with Silk + introduces a 'vintage Class A console' circuit emulation with more high-mid presence.

### In Use

The Portico II is a wonderfully versatile box of tricks. The preamp alone is sonically very clean, with a subtley extended top end that gives a very pleasant presence.

Beyond this, the array of options is almost daunting in its variety. As you become familiar with each section of the Portico II, you appreciate more and more just how well thought through each one is. At no point did I find myself wishing for a few more frequency options or a wider range of bandwidth control, for example. Every stage just oozes quality and attention to detail.

The Portico II lets you transport an input signal through to its destination transparently with no real audible artifacts, or aggressively push it right into your face and make you pay close attention. There is a huge amount of real flexibility here.

### Conclusion

The Portico II carries on the great Portico name. This is, for me, the best I have heard in the Portico range of devices, and there are some very good pieces already there.

The price is quite high but is fully justified by the sheer quality and flexibility that the Portico II offers.

The Portico II is one rack mount channel strip that you really do need to audition for yourselves. AM

#### INFORMATION

£ **GB£2,166.00 (exc.VAT)**
Ⓐ **Rupert Neve Designs, Inc.**
Ⓦ **www.rupertneve.com**

Ⓐ **UK Distributor: Sonic Distribution Ltd., 3 Hunting Gate, Hitchin, Herts, SG4 0TJ, UK**
Ⓣ **+44 (0) 845 500 2500**
Ⓦ **www.sonic-distribution.com/uk**

#### THE REVIEWER

SIMON TILLBROOK is the Principal Music Tutor at Islington Music Workshop in London. The rest of his time is spent as a freelance engineer, mainly in the USA.

AVID

# Hear What You've Been Missing—**Now Native**

## Introducing Pro Tools|HD Native

Get the same trusted toolset, powerful workflows, and unrivaled audio quality of Pro Tools|HD now in a completely native PCIe-based solution, running off the power of your host CPU. And experience the flexibility of running Pro Tools® HD software—or other audio software—with your Pro Tools|HD Native hardware. Pair it with a brand new Pro Tools HD Series interface, featuring premium audio conversion, and you'll achieve the ultimate in sound quality to unleash your creativity.

Get Native – **www.avid.com/hdnative**

© 2010 Avid Technology, Inc. All rights reserved. Product features, specifications, system requirements, and availability are subject to change without notice. Use of the enclosed software is subject to a related license agreement. Avid, the Avid logo, Pro Tools, and Pro Tools|HD are trademarks or registered trademarks of Avid Technology, Inc. in the U.S. and other countries. All other trademarks contained herein are the property of their respective owners.

**The Rooster certainly crows, says ALISTAIR McGHEE – but sound being a subjective thing, will its crow please all?**

# THERMIONIC CULTURE THE ROOSTER

## Valve Pre-amp

It's not compulsory for gear made by small enthusiastic companies to be well finished but it's mostly the case, and Thermionic Culture's The Rooster (a "valve pre-amp with EQ and attitude" ) doesn't disappoint in that respect. A passing engineer picked it up and spent way too long just playing with the toggle switches – on off – on off – on off. Stop it, Mark. But let's be honest if you're reading this publication you're probably someone who gets a lot of satisfaction from a good toggle switch. And it's not as you might think mere switchery pokery – you can't knock a TC phantom power toggle switch by mistake (or as my children would say "on accident").

The heavy duty construction and high standard of finish proclaims a labour of love as much as a 'product', and to be in this market means you'll be stacking this up against other high quality pre-amps, many from the other side of the Atlantic. But this home-grown contender is not just a balanced mic pre-amp – it also offers DI and line inputs, and some interesting tone shaping options including the mysterious 'attitude'.

Most of Thermionic Culture's gear sports VU meters, whereas the Rooster has some basic led metering to get by with. It's probably space more than cost but I would have preferred needle-based metering. Once you get into the EQ you're going to have to put your thinking cap on. To be fair "Bass Lift", "Mid/Hi Lift", "Bass Cut," and "Mid Cut" shouldn't be confusing (even with some selectable turnover frequencies), but I did feel slightly that the process was one that I would need to use regularly to get the best out of. I think this is actually a feature as, for instance, the Bass Lift shelves at the lower end of the boost function but moves to a more 'tipped up' curve as the amount of boost increased.

The real fun though is in the 'attitude'. Sadly, the Rooster is unable to reduce the actual attitude of your 'talent', you'll just have to live with that – the Rooster's attitude is purely additive and only works on the sound. Basically attitude is all about distortion, you get two controls: one six position amount knob, and a mode switch that allows you to run the distortion valve in Triode mode (mostly second order harmonics) or in Pentode mode (third order harmonics) depending on the effect you're looking for. However, the amount of 'attitude' interacts with the input stage control, changing the overall gain of the device. This means that setting the gain of the Rooster is a subtle business involving a few trips round the loop. Input gain control, output gain control, EQ and attitude, input gain control, output gain control... Repeat until happy.

### In Use

I started with an AKG 414 ULS and some vocals. The first thing that impressed me was that the Rooster was commendably quiet (yes I know you can build and buy quieter solid state devices), but what really struck me was the beguiling quality of the top end. One day someone will write a review of a valve-based device without using the word 'warmth'. But in the words of Aragorn: "not today" .

But in any case I tend to be more concerned about how a pre-amp copes with the tricky business of the top end of a voice. And I accept that there may be a wrestling match here between "telling it as it is", call it WYHIWYG and, in the opposite corner, WYHIWYW – the age-old conflict between what you get, and what you want. Many years ago a colleague of mine braved the elements to record one of Wales' mightiest waterfalls – it was a staggeringly good recording capturing everything from the thunderous bottom end to the splashiest transients. I was quite jealous when I heard it. Imagine my secret joy when he proudly played it to the producer who dismissed it almost instantly, much preferring the standard cinema waterfall from the most hackneyed FX CD. I felt the top end of the Rooster had a liquid quality that burnished the vocal to a silvery shine without ever raising its voice... That's the box 'flat', as it were.

### Love It Or Hate It

I lent the TC Rooster to Nic Palmer from MachineRooms in Cardiff. Nic is no stranger to valves. MachineRooms has a TLA desk, and is also home to some crazy Lazy Lizard Labs kit that is made in a secret location in Wales. So secret that only Welsh people can pronounce it. I kid you not. The reaction?

Well, as my boss once said to me: "Presenter X is the most popular presenter in our crucial target area Y. The problem is he's also the least popular presenter in target area Y." Yes, The Rooster is Marmite, and Nic is strictly marmalade – he does want to make it cry or sing. He loved the build and played with the toggles but found the controls not as intuitive as they could be and the gain dance too frustrating for the sound he was getting.

Well that took the wind out of my sails – so I gave it to Clive "The Voice" Roderick, a man who not only has a fine set of chords on him but also knows the hot end of a soldering iron. A very rare combination in my experience. He pronounced the Rooster "delicious" as he fiddled with the toggle switches. So where does that leave us in a world that demands a neat resolution?

Forgive me if I resort to stating the obvious – you need to hear it for yourself. It's definitely able to "sound" – you just have to decide if it's the sound you want.

Now pass the Marmite and I'll tell you my Branston Pickle and Christmas cake story.

**INFORMATION**

£ **GB£2,173.00**

Ⓐ **Thermionic Culture**
Ⓦ **www.thermionicculture.com**

Ⓐ **UK Distributor: Unity Audio Ltd., The Elms Barn, Baythorne End, Halstead, Essex CO9 4AB**
Ⓣ **+44 (0) 1440 785843**
Ⓦ **www.unityaudio.co.uk**

**THE REVIEWER**

Alistair McGhee began audio life in Hi-Fi before joining the BBC as an audio engineer. After ten years in radio and TV, he moved to production. When BBC Choice started, he pioneered personal digital production in television. Alistair is now Assistant Editor, BBC Radio Wales, but is allowed out occasionally.

# ‘Try before you buy’

## Only available from Focusrite’s Pro Dealership network.

You wouldn’t buy a new car without taking it for a test drive. Equally, you shouldn’t have to buy professional audio equipment without testing it in your own studio first. Fortunately, Focusrite have introduced their ‘Try before you buy’ plan. Now you can experience our legendary sound quality for fourteen days without purchase*. Simply walk in and ask to “try before you buy”.

### FOCUSRITE AUTHORISED PRO DEALERSHIPS

Our carefully selected and fully trained pro-dealerships are the only outlets in the UK to carry the Liquid Channel and the full ISA range. They include:

**Absolute Music -** Dorset, **DV -** Birmingham, **DV -** Bristol, **DV -** Clapham, **DV -** Romford, **Dolphin Music -** Liverpool, **Eastwood Sound & Vision -** Central London, **HHB/Scrub -** Soho, **Jigsaw Systems -** Nottingham, **MediaSpec -** Glasgow, **PMT -** Manchester, **Production Room -** Leeds, **Red Dog Music -** Edinburgh, **Soundslive -** Newcastle, **Studiocare -** Liverpool, **StudioXchange -** Southeast England.

Focusrite®

SOUND IS EVERYTHING

### THE LIQUID CHANNEL - Typically £1699.99

Every mic pre and compressor combination in history, inside a single 192kHz 2U device. The Liquid Channel transports classic front-end processing into the digital age, removing the need for endless patching and adding reliability to your studio environment.

### ISA430 MkII - Typically £1899.99

The ISA430 MkII represents the pinnacle of Focusrite’s analogue channel strip technology, bringing together all the classic designs in one comprehensive production tool.

### ISA428 MkII - Typically £1199.99

Four of Focusrite’s prestigious transformer-based microphone preamps, featuring the same classic circuitry and renowned audio quality found in the original, alongside a class-leading A-D converter option, all at a new level of affordability.

### ISA828 - Typically £1799.99

The ISA828 eight channel microphone pre-amplifier provides eight original ISA transformer-based preamps in a single robust 2U chassis, offering the Focusrite signature sound at its lowest cost per channel to date. The same eight channel A-D converter option is also available.

### ISA One Analogue and Digital - Typically £399.99 and £599.99

ISA One is ideal for both engineers and demanding performers alike, featuring the classic ISA transformer-based pre amp, a simultaneous DI, an output for routing to an amp, an independent XLR output on the rear and, on the Digital option, routing to the digital output.

www.focusrite.com/try

*Terms and conditions apply. Speak with your nearest Focusrite pro-dealer for details.

Photograph taken at Phoenix Sound Limited, Pinewood Studios

Cool motorbikes, deathly frisbees, suits that light up, and living inside a computer game. What's not to like? The long awaited *Tron* sequel is here, with a souped-up game world more deadly than the last. PAUL MAC talks to Skywalker Sound's Addison Teague and Gwen Whittle about living up to the legacy.

# Tron: Legacy

Since Clu, Tron, and Yori last did battle with the MCP, the original film of *Tron* has sat in the public consciousness, waiting for the next wave of cult-status-retro-desire to sweep it back into the mainstream. This time around, the game has been seriously upgraded, and our new action hero is Kevin Flynn's son, Sam (Garrett Hedlund), who goes to find his missing father – now Clu 2.0 (Jeff Bridges). Joseph Kosinski Directs, with the bulk of the sound credits going to the awesome talent pool at George Lucas' Skywalker Sound.

If you check the sound crew on *Tron* at IMDB, you'd be forgiven for thinking that this was one of the biggest crowd of audio post people ever assembled for a film. This is a little bit misleading. The project has been going on for some time – since Steve Boeddeker put together the initial visual effects test light-cycle sequence in 2008.

Addison Teague, one of two Supervising Sound Editors on the film, notes that this gave the main production a welcome boost from the start: "When they green-lit the film, he [Joe Kosinski] had Steve Boeddeker continue to create all these sounds because he wanted to be putting the sounds with the picture as he was making the film. So this went off and on, but Steve created this really amazing library over the course of a year before I even started – I came onto the film in March of this year."

Over time, there have been a quite a few project visitors, which in some ways could be a problem – consistency of knowledge, and so on; but in others, can be a boon. "It's not ideal to work that way," notes Teague. "But the process evolved and there was a lot of experimentation along the way. Sometimes it would work out really well because you'd hit a dead end with one thing, and you'd have a new Editor come in with a fresh perspective. I would typically choose those particular mini projects for someone new coming on – if I knew we needed a new start or a new take."

In the most recent times, editorial has been a minimal crew, with Josh Gold and Kysten Mate as the mainstays. "We probably could have used an extra set of hands all the way through," comments Gwen Whittle – the other Supervising Sound Editor, "But there's all those budgetary concerns, so you go the fattest they'll let you go."

## The Retrospective Angle

One obvious question to start with is how much the original movie has influenced this new one. Teague makes the point that *Tron: Legacy* is actually a sequel, not a remake, and so their work was very much "in the spirit of the original," but not simply a new version of it.

Fundamental to this is the idea that the game world in the new film is an evolved version, which was a gift to everybody involved in the film – evolved movie-making technique and technology is well-suited to creating an evolved *Tron* world.

"The first thing that we were told when we spotted the film," reports Teague, "Was that Joe was really looking to the sound to help 'ground' his visuals, and so we needed the sound to be very realistic. This was a curveball for all of us because, being fans of the original film that had really groundbreaking sound design to match the visuals, we figured that was what we were going to do with this as well."

And so the team went about finding real-world sounds to attach to the film elements – a strategy designed to help the audience 'buy into' the fictional world by giving it reality handles to hold on to.

"Once we accomplished that," says Teague, "Then it was a matter of going in and trying to find layers of sound design that would coexist with these realistic sounds, and give it that *Tron* feel.

"The discs were an interesting one, because we went down tons of roads with them. Again, in trying to find that physical sound that grounds it, I turned to YouTube and did a search for flying remote control toys, just to see if I saw anything that could physically move air in a rotating way."

The toys provided a foundation element, and then came the layers of electronica that Boeddeker and Sound Designer/Re-Recording Mixer Chris Boyes had been developing for the film. The goal was to find "that combination of something that feels like it's turning, but then when it gets thrown through the air also has an electric energy... like a hi-tech frisbee."

As you might expect from a process that necessarily leaves a long trail of mutated audio elements in its wake, individual elements become lost in the whole. When asked about contributors to the energy of the discs, Teague responds: "I wish I could tell you – there's a lot of experimentation in this film. When you manipulate sounds, you can only take things so far before they start to fall

apart, and then you have to tone back a little bit. In the *Tron* world, that sort of deconstruction of sound was very appropriate, so we'd find that there were a lot of happy accidents. You're always trying to push things, and come up with new processes that you haven't used before, but when sound would start to fall apart in a digital way, we came up with a lot of really fun textures and those became a huge palette to work with on any given shot."

## Music + Effects

A lot of music for *Tron* was provided by French electronic duo Daft Punk. The pair, according to a quote from Joe Kosinski, are huge *Tron* fans. The development of the music took place over three years and, in Kosinski's words: "It's so integral to the film, so tied to the picture. It's a combination of orchestral music, electronic music, granular music, a layering blend that sometimes blurs the line between music and sound design in a really interesting way."

For the Skywalker team, one of the most significant musical features was its early arrival. The guide tracks were of the actual music, so instead of just working to picture, the team knew how the music would fit.

"It was both a challenge and a real pleasure to have that ahead of time," says Teague. The challenge he speaks of was the opportunity to bring music and effects closer than most movies ever manage, at the Editorial stage. "It completely informs you as to what is going to be there and what will work," he continues. "We were able to go down roads where we would orchestrate the effects to really work with the music. At times they blended together a little too much, so then you could re-group and come at it with a different angle.

"The light cycle is a perfect example. That was the first thing that was done for this film – for the visual effects test that was shown in 2008 – and it was very motorcycle based... It had no music, so it allowed Steve to just go crazy with the sound effects and not worry about it – really detail it out.

"The light cycle sequence in the movie is completely music driven. We went down one road where we actually tried to pitch the light cycles so that they co-existed with the music, because we knew anything that clashed with the music tonally was just going to get dropped.

"However, we ended up circling right back around to the motorcycle sounds. What we found, and it was a really odd lesson, was that it's one thing to make things co-exist, but when you get into a mix and each thing needs to have its moment, if the sound effects co-exist too much with the music then they can't really have their day, they can't really have their moment and they don't quite have their punch."

> "What we found, and it was a really odd lesson, was that it's one thing to make things co-exist, but when you get into a mix and each thing needs to have its moment..."

## Talk Talk

You'd think that maybe getting good production sound for something like *Tron* would not be as difficult as from more challenging and less 'controlled' sets. Not so, apparently...

Whittle explains that the light suits the actors wore for the film were the cause of much trauma. "The suits have lights in them. They were real lights, practical lights... and each suit had its own really migraine-inducing whine; and when the actors would move close to each other the whine would change. That any of the production dialogue is useable is a miracle.

**Credits/Info**
Skywalker Sound
www.skysound.com
Addison Teague – Supervising Sound Editor
Adam Kopald – Sound Effects Editor
Bil Martel – Production Sound Mixer
Brad Semenoff – Apprentice Sound
Brian Chumney – Foley Editor
Cheryl Nardi – Dialogue Editor
Christopher Boyes – Sound Designer and Sound Re-Recording Mixer
Christopher Scarabosio – Sound Effects Editor
Corey Tyler – Foley Recordist
Doc Kane – ADR Recordist
Donald D. Brown – Boom Operator
Gary Rizzo – Sound Re-Recording Mixer
Greg Zimmerman – ADR Recordist
Gwendolyn Yates Whittle – Supervising Sound Editor
Jonathan Null – Supervising Foley Editor
Josh Gold – Sound Effects Editor
Juan Peralta – Sound Re-Recording Mixer
Julian Howarth – Sound Effects Recordist
Juniper Watters – Sound Assistant
Ken Fischer – Sound Effects Editor
Kysten Mate – Sound Effects Editor
Mac Smith – Sound Effects Editor
Michael McGee – Production Sound Mixer
Michael Silvers – Dialogue Editor
Sean England – Foley Recordist
Steve Boeddeker – Sound Designer
Stuart McCowan – ADR Editor
Teresa Eckton – Sound Effects Editor
Tomy O'Connell – ADR Recordist
Warren Hendriks – Sound Effects Editor

## REMOTE CONTROL

Skywalker Sound grew out of filmmaker George Lucas's desire to "create anything he could imagine by any means necessary." Phil Benson, the recently appointment General Manager at Skywalker, knows what needs to be done to realise that ambition, and is currently offering Skywalker clients the benefits of a new collaboration tool to make the production process less fraught, and more productive.

In headline, the studio has developed an exclusive, remote collaboration technology that allows a director to work with multiple vendors from a single location without sacrificing the quality of either the image or sound that need to be reviewed.

Benson: "In practical terms, what this means is that on his project Tron: Legacy, while Director Joe Kosinski is physically at Skywalker Ranch for the final audio mix, he will also be able to play back and manipulate full-resolution 2K 3D imagery that is streaming from a visual effects facility 400 miles away.

"The system essentially allowed Joe to be in three places at once. We created a system that has the ability to stream uncompressed stereoscopic 1080P HD video along with up to eight channels of uncompressed audio with a virtually unperceivable delay."

The system operates over a private high-speed network from Skywalker Sound to various points in Los Angeles (and soon globally) and also incorporates the ability for two-way communication both via video conference, as well as transport control and on-screen notations which can be added at either end.

The Skywalker Sound engineering team used both off the shelf electronics and custom hardware to do the heavy lifting, encoding the dual streams of uncompressed HD video into the JPEG 2000 codec, and bundling the resulting data with the eight audio channels prior to being beamed across a private 1GB network to the final destination with very low latency – under 150 milliseconds.

*Tron: Legacy* is the first production to use this technology.

"We took those migraine inducing production tracks and cut them. Thank god I had help with that, because it was pretty scary. A wonderful woman named Marie Ebbing put all the whine stuff through this process called Nova, then she'd send them back to us... If new whine tracks came in, we'd give them to her and she'd give it back to us. Then Gary [Rizzo] pre-mixed it, and she took another level of schmutzey stuff out of it, and then when we finalled we took another level of stuff out.

"One of the scenes in particular, there's no music, they're in this pristine white room with no bands, no nothing – it's just naked. The fact that we could use it is a testament all those people who put all that effort into it."

> "Normally in a dialogue job you're trying to make everyone sound as natural as possible, in this one you were trying to find ways to make them sound messed up and flangey and underwater"

Gwen estimates that they recorded ADR of about 75 percent of the film, and used about 60 percent of that. The reason for the excess was simply that they didn't know whether the production sound was definitely going to work, and opportunity to get actors in was limited.

"We got lucky that the main actor, Gary Headland, loves ADR," says Gwen. "He got excited – which is really rare, as you know. And Jeff Bridges, who's been acting for life, is really, really good at it... In case the production was not useable, we had incredibly good viable options, which was nice."

I was particularly interested in character dialogue for *Tron's* digital world, and what that meant for those working on the dialogue sound. Sometimes a signature, or a design strategy denotes an environment. It turns out that the treatment is even more tied to the concept of an 'other' world. "Everyone in the game world is a computer program," explains Whittle. "Joe, the director, wanted to have it so, depending on how high up in the computer program you were, you'd be less processed. The 'programs' at the bottom rung were more processed and had more digital distortion on them – they sounded less human.

"Normally in a dialogue job you're trying to make everyone sound as natural as possible, in this one you were trying to find ways to make them sound messed up and flangey and 'underwater' – and with little digital artefacts on them."

Apparently Josh Gold, one of the Effects Editors, did much of the work on this aspect. "For one character," says Gwen, "He did each syllable in different ways. It's completely bizarre.

"The problem comes as the characters go up the chain; if you process the higher levels ones too much you stop being able to understand them. So we had to back off on that a little bit, so some of them have just the littlest edge... You might not even notice it unless you're really listening for it.

"We used PhaseMistress, we used Pitch n Time, Crystalizer, even a de noiser thing thing that makes people sound a little bit underwater and sort of hazy – we used that in the opposite way that most people normally do. A lot of the stuff was pitched way low, like four semi tones down, just to make them very, very manly, and then we'd put stuff on top of that."

## 3D? Yes, We've been Doing That For A While...

At a time when many of the big film releases are coming out with both 3D and 2D versions, it's a good time to ask about the concept of 3D sound. Has anything changed? Haven't we been mixing films in 3D for some time now?

For Tron, the 7.1 format was selected for its additional rear channels from a number of options. "Joe listened to a number of formats on this film, says Teague, "Because he was really interested in embracing as much additional 3D sound as he could. We arrived at 7.1, which adds a couple of channels in the back.

Teague also notes that the 'new' 3D is generally different to the 'old' 3D, and as such, doesn't require novelty panning to match equally outrageous visual effects. "The old 3D was more about coming out at you and poking you in the eye, and the new 3D is more like an aquarium – you're looking into something. It's more about depth... Of course, it depends on the content of the film; there's the occasional thing, the visual cue that wants you to bring something out into the theatre, but a lot of it is just the depth in the front, and that's something that we've been trying to do for a long time anyway."

Whittle concurs – the old rules still apply: "7.1 instead of 5.1 may make it more 3D, but I think it just fills up the room in a different way... We didn't do anything specific for 3D. I mean at a certain point it gets distracting to go behind you too much. Even if it is 3D, the screen is still in front of you."

The idea that actually mixing to 3D picture might be common some time soon could be a little too progressive. There are many logistical issues to start with, and also endurance: "It gives you a headache," says Whittle. "It's really good to check it, but your head's going to explode if you mix all day with those glasses on, especially if you wear glasses to begin with and you get the 3D glasses on top... it's hard."

Teague: "We didn't mix anything to 3D picture. I've done a couple of 3D films and typically the director knows what the 3D's gong to do, so they can always keep that in mind.

"You have to think that's coming at some point. The mixers say they can't see the faders if they have the glasses on. There's the fatigue standpoint too, I mean, the main reason we don't do it is that technically, they don't have the picture ready. We can do it on these stages – we're completely set up for 3D projection in a mix stage environment, but normally the picture's not quite ready. That's usually why it's after the fact."

There is, however, at least one nod to a notion of 3D as a creative, dynamic effect. A shift from more subtle 3D visuals to more drastic ones marks the film's transition from the real world into the game world. "The moment when Sam gets pulled into the world," says Teague, "Is an exception in terms of sound. I talked about the aquarium feel as opposed to the 'poke you in the eye' feel, and that first moment right when we go into the more aggressive 3D, is a moment that really comes at you. So that was fun to take the sound, and play with the surrounds a bit at that moment."

It's apt that a film with its roots so firmly in technical advances – both fictional and real – should be on the leading edge of the cinema experience. Using a level of 3D as a creative mechanism is another advance – another lead.

This is something Skywalker Sound is familiar with, from the lengths it is prepared to go to for the aural experience to be a memorable and fulfilling one, to its constant reappraisal of what it takes to participate in modern production workflows.

OFFER ENDS
December 31st 2010
PROJECT STUDIO REFLEXION FILTER*
WORTH £110 inc VAT / €110 plus Tax WITH SELECTED sE MICROPHONES*
Free Project Studio Reflexion Filter using sE Patent Pending
Multilayer Technology with selected sE Microphones*
Available at Point of Purchase in sE Authorised Stockists
more info: www.seelectronics.com/PSRF.html
*Free sE Project Studio Reflexion Filter with every purchase of: sE2200T, 2300a,
4400a, T2, 2560Da II, Gemini II, Gemini III, E5, G3500, Voodoo VR1, Voodoo VR2
0845.500.2.500
www.sonic-distribution.com
SONIC
sE
Sound Engineering
www.seelectronics.com

# 2010 Gear of the Year

We cogitated, considered, and co-operated with investigations to bring you the 24-bit pick of this year's product launches. We've chosen gear on criteria as diverse as innovation, practicality, cost, and coolness – though we can't be drawn on which is which. Simply photocopy it and hand it over to Santa.

## Audio-Technica HBPS-1

The new HBPS-1 headphone and microphone set is positioned to sell well. With a dynamic microphone, there's no need to rely on power availability, and a high priority has been put on comfort – for those long sports and live broadcast sessions. A removable cable and switchable left-right configuration round off the package.

**EDITOR'S COMMENT:**
**There's a lot to be said for listening to customer need and responding. The HBPS-1 doesn't need power and costs less. It's niche is quite big...**

Reviewed *Audio Media* November 2010
**www.audio-technica.com**

## Avid Pro Tools 9

Pro Tools 9 (including Pro Tools 9 HD) is a big break from Avid's past. Now the software includes Core Audio and ASIO support (use any interface), and is the first release for the new Native and HD Native options (single installation). It's also the first Eucon compatible version since Avid bought Euphonix. More new features plus many 'catch-up' bits and bug bashes round off the sea-change.

**EDITOR'S COMMENT**
**The biggest thread in three months of Pro Tools announcements has been the move to open the platform up and play nicely with others in the DAW world. There's still more to do, but so far, so great.**

To be reviewed...
**www.avid.com**

## Cedar DNS One

This software-based dialogue noise suppressor recreates CEDAR's DNS process as a Pro Tools plug-in. The plug-in runs on Mac OS X and Windows, and features a user-interface that allows users to control hundreds of channels of DNS from a single Pro Tools host. DNS will remove rumble, general background, whistles and camera noise from contaminated audio.

**EDITOR'S COMMENT:**
**When will they make it a plug-in? When will they make it a plug-in? When will they make it a plug-in? Oh... they did. It's a good day in no-compromise noise reduction.**

Reviewed *Audio Media*, March 2010
**www.cedaraudio.com**

## DiGiCo SD9

The SD9 from DiGiCo is a complete integrated system that includes the mixing surface, a D-Rack digital stage interface, and CAT5E digital multi-core, with the additional ability to simultaneously record 56 channels direct to multi-track software or a DAW. The new D-Rack, which is an integral part of the SD9 system and connected to the work surface by a digital CAT5E cable, has 32 microphone inputs, eight line outputs, and eight modular outputs.

**EDITOR'S COMMENT:**
**Who knew that state of the art processing and power could get to be this compact, this convenient, and come in at such a low cost? DiGiCo makes this stuff look easy.**

Previewed *Audio Media*, September 2010
**www.digico.biz**

## Focusrite Octopre Dynamic MkII

The Focusrite OctoPre MkII Dynamic features eight channels of mic pre-amplification. Each channel has a VCA-based compressor that has been tuned by ear to model the sound of the Focusrite Red 3. The compressor can be used to provide a clean, controlled sound, or the behaviour of the VCA can be transformed using the 'more' switch. The unit also has on-board 24/96 converters and optical output.

**EDITOR'S COMMENT:**
**The component parts of the Octopre dynamic are not new, it's just that the package is so elegant, so useful, and so obvious, that it deserves this 'pick' every bit as much as innovation and originality.**

Reviewed *Audio Media*, April 2010
**www.focusrite.com**

# FOR REAL PRO AUDIO

- api
- anthony demaria labs
- apogee
- apple
- avid
- barefoot
- brauner
- coleman
- crane song
- dav electronics
- dramastic audio
- fmr
- jdk
- lavry
- lynx
- neve
- peluso
- pmc
- prism
- roll music
- shadow hills
- shinybox
- soundfield
- soundman
- towersonic

# TALK TO US

KMR are Europe's leading supplier of high-end recording equipment. We stock a huge range of audiophile gear - available to audition in either our North London demo rooms or the comfort of your own studio. If you like your supplier to know one end of a Lundahl transformer from a T4 opto-compressor, our highly experienced staff will help you choose the best equipment for your needs. Combining a passion for great recording kit with good old-fashioned service and competitive pricing, we look forward to hearing from you.

KMR AUDIO

email • sales@kmraudio.com web • www.kmraudio.com
kmr audio, 1375 high road, whetstone, london N20 9LN

020 8445 2446

## Fostex FM-4

The FM-4 is a four-channel portable mixer for all location work. Each of the four balanced XLR inputs can accept mic or line level inputs and feature 12T and 48V phantom power, an ultra-low noise pre-amp with custom transformers, and switchable hi-shelving EQ and mid sweep EQ. Metering is done on an organic LED display with both VU and peak level indication.

**EDITOR'S COMMENT:**
**The FM-4 has a beautiful display, all the right knobs and buttons in all the right places, a good build quality-versus-weight quotient, and a reassuringly analogue signal path that makes the grade.**

Reviewed *Audio Media*, January 2010
**www.fostexinternational.com**

## Genelec 8260

These new monitors represent Genelec's first foray in into coaxial drivers. The spear is actually a three-way, with a tweeter/mid-range coaxial combination, which apparently offers better performance over more traditional mid/woofer designs and, according to the designers, blurs the line between cabinet and driver – one is part of the other. The 8260 comes with DSP inside and Genelec's GLM software.

**EDITOR'S COMMENT:**
**Genelec never stops the progress, and the 8260 is another jump. From cabinet, to electronics, software, and drivers, Genelec keeps driving forwards.**

Reviewed *Audio Media*, September 2010
**www.genelec.com**

## Harrison Consoles Mixbus

Harrison Consoles' Mixbus is a virtual analogue console integrated into a full-featured DAW. It features True Analogue Mixing, based on Harrison's 32-Series and MR-Series console designs, plus Harrison's proprietary digital mixing technology; with precision DSP algorithms for EQ, filter, compression, analogue tape saturation, and summing. There are four stereo mix busses, featuring tone controls, compression, side chaining, and analogue tape saturation.

**EDITOR'S COMMENT:**
**MixBus is a surprise product from a respected brand. It has crept, almost virally, onto the desktops of audio pros who recognise a great new tool (and bargain) when they see one.**

Reviewed *Audio Media*, January 2010
**www.harrisonconsoles.com**

## Lexicon PCM Native Reverb

This bundle is a reverb plug-in emporium for VST, Audio Unit, or RTAS compatible DAWs. The bundle contains seven Lexicon reverbs with hundreds of studio presets. It has a graphical real-time display illustrating the frequency stages of each algorithm, and a visual EQ section for easy adjustment of both early and late reflections. Presets can be stored in a DAW independent format that allows custom presets to be transferred between any DAWs.

**EDITOR'S COMMENT:**
**Putting such a revered reverb collection into plug-in form could have been the biggest mistake ever. However, Lexicon has rightly taken a no-compromise approach and done justice to the legend.**

Reviewed *Audio Media*, March 2010
**www.lexiconpro.com**

## Midas Venice F

The Venice F was launched at this year's PLASA show and stood out for being a new analogue release. But there's a twist. Even though the Venice F uses analogue wizardry from the XL3, XL4, and Heritage, one of its big straights is the inclusion of a 64-channel (32x32) Firewire interface, which could be used for multi-track recording or even for computer-based effects processing. The console comes in 16, 24, and 32 frames with six aux sends, four groups, stereo masters, and a 7x2 matrix.

**EDITOR'S COMMENT**
**Far from abandoning its impressive analogue legacy, Midas is busy making sure it stays relevant. The Venice talks digital, and sings analogue.**

To be reviewed...
**www.midasconsoles.com**

## Nagra LB

The LB is the latest two-channel recorder from Nagra and features many of the well-known Nagra traits such as a lightweight aluminium body, transport dial, and high-quality pre-amps. In addition the unit features two colour displays, one dedicated to the on-board editing system, ethernet and Bluetooth connectivity, and an internal 2GB Flash memory, amongst other things.

**EDITOR'S COMMENT**
**The Nagra LB goes further than anyone yet with just a two-channel product. As always, the build quality, audio quality, and ease of use should be admired close-up.**

Reviewed *Audio Media,* September 2010
**www.nagraaudio.com**

## PenteoSurround Penteo R/T

The PenteoSurround Penteo PostPro is, simply put, a stereo to surround up-mix processor that uses the unique algorithm developed by Penteo. One of its big selling points is that the unit, by using a system of 'panorama slicing', will automatically maintain folddown compatibility in its output.

**EDITOR'S COMMENT:**
**My over-riding experience with the PenteoSurround processor has been the endorsements willingly offered by many respected name in high-end post. Sometimes, the buzz is justified.**

Reviewed in *Audio Media*, December 2010.
**www.penteosurround.com**

## PreSonus Studio One

PreSonus says its goal in developing Studio One was to "wipe the slate clean and apply

decades of collective software and hardware experience to bring the DAW back to the musician and producer." This translates as an easy to use program for Mac and PC, with drag-and-drop MIDI mapping and plug-in management, auto-configuration with PreSonus hardware, and unlimited tracks and plug-ins per track.

**EDITOR'S COMMENT:**
**Presonus often demonstrates a unique take on products that focuses on the real needs of sound people. Presenting a new DAW is a brave move done for all the right reasons.**

Reviewed in *Audio Media*, February 2010
**www.presonus.com**

## RME Fireface UFX

This unit combines several RME technologies and features into a single unit. At its heart are 60 channels of I/O, four mic pre-amps, two MIDI interfaces, dual headphone outs, a hardware remote, USB stick/drive connection (with a recording update to come), DSP-based reverb, and an updated TotalMix FX software. The main DAW connection comes in two flavours – Firewire and USB (USB3 compatible).

**EDITOR'S COMMENT**
**This box really does have a bit of everything, and even the promise of more to come. RME's reputation for reliable, fast DAW interfacing, high-quality audio, and feature-rich gear remains.**

Reviewed *Audio Media*, November 2010
**www.rme-audio.com**

## RSS S-0808

The S-0808 is the world's first battery operated and remote-powered 8x8 digital snake, with inputs that offer remote controllable pre-amps. The unit is an 8-in/8-out compact, lightweight digital snake that supports multiple power options including battery power, embedded power over REAC, and power over Ethernet. It offers TRS and Hi-Z inputs.

**EDITOR'S COMMENT:**
**The S-0808 takes the incredibly popular digital snake technology and makes it useful and affordable for a very large number of people. Who wouldn't want the advantage of single cable, eight-channel transmission sitting in their bag, ready for use at a moment's notice?**

Reviewed in *Audio Media*, September 2010
**www.roland.com**

## Rycote Invision USM

This is a universal mic suspension for large-diaphragm recording microphones. An alternative to elasticated suspensions, the design is based around the 'u'-shaped Lyre suspension mount used in Rycote's InVision suspension range for smaller-barrelled microphones. The mount will accept round and flat-sided large-diaphragm instrument microphones from 18 to 55mm in diameter. Attenuation of unwanted vibrations, handling, and stand-borne noise is up to 12dB better than traditional elasticated designs.

**EDITOR'S COMMENT:**
**The difference that such a seemingly simple product as InVision can make to the very fundamental act of audio acquisition is spectacular. Who needs elastic now?**

Reviewed in *Audio Media*, March 2010
**www.rycote.com**

## Schoeps Super CMIT

The Schoeps Super CMIT is based on the analogue CMIT 5 model, and uses technology

EXCELLENCE
IN THE FIELD
FM-4 : FM-3 : FM-1
Portable Location Mixers & Preamp
Robust, high specification, professionally engineered portable mixers, (and new FM-1 mic preamp), specifically designed for location film & TV production, electronic field production and ENG applications.
FM-3: 3 Channel Mixer
NEW
FM-1
Portable Mic Pre-Amp for ENG Applications
A high quality mic preamp with powerful microphone gain limiter. Compact, rugged and simple to use.
FM-4: 4 Channel Mixer with EQ
FOSTEX
3-2-35 Musashino, Akishima, Tokyo, Japan 196-0021 Email: info_sales@fostex.jp www.fostex.com

from Illusonic. In addition to the capsule behind the interference tube, it has a second, rear-facing microphone capsule. Based on a determination of persistent, discrete arrival (or not) DSP suppress diffuse sound and focuses on discrete sound. This increases the reach of the microphone, without colouring the sound.

**EDITOR'S COMMENT:**
**Schoeps has taken a staple ingredient in the recordist's armoury and, with some original thought, has made it more versatile and more valuable than ever before.**

Reviewed in *Audio Media* June 2010
**www.schoeps.de**

## sE Electronics Gemini 5

With the whole twins thing going on, you'd have thought that taking out one of the two valves would have done for the 'Gemini' name. But no, the double whammy with this big-guy is the dual tube and FET electronics paths via the power supply unit. The two outputs can be tracked simultaneously, so stacking a variety of coincident mics is no longer an issue. The microphone has a single cardioid polar pattern and comes with suspension, PSU, flight case, and cable.

**EDITOR'S COMMENT:**
**This mic has is a very practical solution to the persistent problem of "Which mic? Both mics? Many mics?" A single capsule, two signal paths. Good job.**

Reviewed *Audio Media*, July 2010
**www.seelectronics.com**

## Soundcraft Vi1

Soundcraft's Vi1 is a small, low-cost console in the Vi digital desk range. It comes with 32 channels of analogue input to 27 analogue outputs, plus digital inputs, four Stereo FX returns, and six digital outputs in one chassis. Input to mix capacity is 46 channels, but a stagebox increases that to 64. Channels are routable to 24 multi-function busses. Up to eight of the busses can be configured as Matrix mixes.

**EDITOR'S COMMENT:**
**The Vi1 speaks volumes to a customer whose needs are 'smaller', but who is just as demanding as everyone else. Vistonics, Lexicon effects, and BSS EQ are just a few highlights.**

Previewed in *Audio Media* September 2010
**www.soundcraft.com**

## SSL AWS... Updated

The AWS 900 was already a great console, but SSL has gone to town on it. On the AWS 948 the number of inputs have basically been doubled with a new dual path channel strip that can work in stereo mix, in-line mix, and in-line tracking modes. In addition, the new A-FADA mode enables the analogue motorised faders on the AWS to follow automation data from a DAW; there are metering upgrades, LCD scribble strips, SD card project storage, and a chassis re-style... amongst other things.

**EDITOR'S COMMENT:**
**This takes the AWS success story to new heights with some very innovative features and useful frills. Not so much an update as a whole new console?**

To be reviewed...
**www.solid-state-logic.com**

## Steinberg Nuendo 5

Nuendo 5 includes an ADR toolset, extended compatibility, improved editing features, and a new scrubbing engine. It also offers new VST3 plug-ins, Surround Panner V5, and an extended automation system with 'flexible passes' technology. MediaBay has been rebuilt with network collaboration for multi-seat projects, while Clip Packages organise individual clusters of audio clips into one file, to be used again and again – great for sound design elements.

**EDITOR'S COMMENT:**
**Steinberg is well aware that competition in audio post is fierce, and has responded with yet more features, more innovation, and more professional credibility than ever before.**

Reviewed *Audio Media*, July 2010
**www.steinberg.net**

## TC Electronic System 6000 MkII

The System 6000 MkII has upgraded software and hardware, and can now be controlled and updated over a network or via wi-fi. There are two versions – Reverb 6000, offering dozens of pristine reverbs, delays, and boundary effects for mono to multi-channel working; and Mastering 6000, with a selection of precision tools for the mastering engineer.

**EDITOR'S COMMENT:**
**The new System 6000 takes the power, depth, and all-seeing original, and steps it up a few gears. It has hands on control and an engine that deserves to be heard.**

Reviewed in *Audio Media*, June 2010
**www.tcelectronic.com**

## Thermionic Culture Fat Bustard

The Fat Bustard is a high-end 12-channel summing mixer (plus two aux ins) made for the adventurous creative. The 'varislope passive EQ' controls with single knob control for each band and a mono-summing bass EQ stage start the ball rolling. A innovative frequency selective stereo width section, separate monitor controls, and two large VU meters complete the front panel, while inside there are 5965, 6SN75, and 12AU7 valves for some thermionic character.

**EDITOR'S COMMENT:**
**'Summing mixer' might be a rather tame phrase for this creative beast. The Fat Bustard will not only enrich your aural senses, but it will reach in and tickle your hair cells.**

Reviewed *Audio Media*, November 2010
**www.thermionicculture.com**

## Waves SoundGrid

SoundGrid is an Audio-over-Ethernet networking and processing technology that provides low latency, high channel-count Waves audio processing using standard Intel CPUs and 1Gbps Ethernet networks. Real-time

### ONES TO WATCH...

There are a few products, several launched at the recent AES convention in San Francisco, that don't quite make it into a December 2010 issue – we'd rather leave them until the Mid-Year Gear Picks. Here is a taste of things to come...

#### IZOTOPE NECTAR

Nectar is a brand new vocal processing toolkit announced at this year's American AES convention. One interface includes an emporium of vocal-specific effects and processes. Review coming soon...

**www.izotope.com**

#### FOCAL MONITORS

Focal used the AES convention to show off its new SM9 monitor, a single unit that can be a three-way or two-way monitor depending on user selection. It incorporates the best of Focal monitoring technology along the way, and promises to be a treat for the lug-holes.

**www.focalprofessional.com**

#### SSL NUCLEUS

SSL says "Nucleus re-defines the professional project studio with a perfect blend of advanced DAW control, transparent SuperAnalogue monitoring, high class analogue mic pres, pro quality USB audio interface, and bundled SSL Duende Native plug-ins." We've already cleared a space next to the keyboard.

**www.solid-state-logic.com**

#### NEUMANN KH120

Following Neumann's absorption of the studio products part of Klein & Hummel, the company has been working hard to bring a professional monitoring line to market that can live up to the new brand. Based on the KH technology, the first product to emerge is the Neumann KH120 A near-field active monitor. More once we've heard it...

**www.neumann.com**

#### SADIE 6

While SADiE 6 was announced some time ago, the software's transformation into a sparkly new DAW fit for the Native age has been ongoing. Now the full launch is imminent and we wait with baited breath to find out what's been going on in SADiE R&D all this time.

**www.sadie.com**

audio processing is performed on standard Intel-based plugin servers, running a Waves-customised real-time version of Linux with a standard Mac or PC running the SoundGrid Host application. Audio is interfaced with SoundGrid by integrating a SoundGrid-programmed FPGA (Xilinx Spartan 3) into a mixing console's I/O ports. Yamaha and DiGiCo have already implemented SoundGrid for their products.

**EDITOR'S COMMENT:**
**Super-fast, expandable processing with redundancy options and more. It's a big idea, and one that makes sense to a lot of people.**

To be reviewed...

**www.waveslive.com**

### LAST YEARS WINNERS

Some things we included in last year's list have taken a little while longer than expected to either come to market or get picked up by the masses. Just in case you missed the 2009 Gear Of The Year or are concerned we've missed something important, here are last year's lucky winners...

ADAM S3X-H • Allen & Heath XB-14 • Audio Ease Speakerphone 2 • Calrec Apollo • DiGiCo MACH 2 • DPA 4099 • Euphonix MC Transport • Focal CMS65 • Focusrite Liquid Saffire 56 • Izotope Ozone 4 • JoeCo BlackBox • LittleLabs VOG • Mackie Onyx-i Series • Marantz PMD661 • Neumann TLM 102 • Novation Automap V3.1 • Radial Phazer • RME HDSPe Series • SADiE 6 • SE Electronics T2 • Sennheiser G3 • Sonnox Restore • Sound Devices 552 • Soundfield UPM-1 • TASCAM HS-P82 • Telefunken U-48 • Trinnov Stereo Optimizer • Ultrasone Pro 900 • Waves Vocal Rider • Zoom H4n


Welcome to the New Standard in Recording Technology

Symphony I/O

Ultimate sound quality
Logic and Pro Tools compatibility
Total I/O flexibility

Raise Your Standards

0845.500.2.500
www.sonic-distribution.com
SONIC

APOGEE
www.apogeedigital.com

# PenteoSurround PostPro

**The PostPro's unique selling point is that it can effortlessly create mixes that downmix seamlessly back to the original; but how does it stand up as a general contender in terms of sound quality and ease of use? BEN STILES finds out.**

THE FINAL DOLBY MIX of a feature-length documentary, with the original composed score recorded in stereo 2.0 format, presented itself as the perfect real-world opportunity to discover what claimed to be a sonic box of delights – the Penteo PostPro stereo to surround up-mixer.

The ability to create 5.1 surround imaging, as well as other less well known formats, from a stereo source is still a relatively new phenomenon, despite other products already being available on the market. Penteo's claims as to how it creates a surround format from 2.0 tracks, and the resultant quality of the final product were both intriguing and, if qualified, highly useful to a dubbing mixer like myself. The algorithm, according to Penteo, "creates 5.1 audio by 'panorama slicing' the stereo mix into its original left-to-right components, and then re-maps those components into their respective positions in a 5.1 field...[the] process does not alter any phase components or levels. Our surround masters down-mix back to stereo with absolutely no sonic artifacts" – impressive stuff.

I've worked with score that has been written and recorded in both 2.0 and true 5.1 before, of course, and was interested to see how a score composed and recorded in the 2.0 format then up-mixed would benefit from the process, and how much deviation from that upmix would be exposed in the stereo fold-down. It represents a real change from the common practise of simply pulling some of the 2.0 music towards the rear speakers, often with a true 5.1 reverb having its send routed through the surround speakers, but only working with two discrete channels of original audio.

The context of my review is largely based around musical score, although I did have the chance to put a few stereo effects and atmospheres through the PostPro too, but ostensibly focuses on my experience with music.

## First Impressions

There are two flavours of the PostPro unit – Rack-mounted or desktop unit. I used the latter. It was a small affair, probably six inches wide, two inches tall, by eight inches deep. It uses an external PSU transformer, and comes with D-sub break-out cables for interfacing with whatever DAW or playback gear one might have. Booting the unit up ( which is essentially a PC board with internal hardware and copy-safe, encrypted software) the front panel shone the green light of its block digital display, reminiscent of early rack modules, EMU synths and such. The actual usability of the PostPro doesn't rely on any high-def or colour display; it features a simple menu system with five function buttons, scroll arrows, and an OK button. In short, I found it easy to use, with no sub-menu operation to create unwanted settings that are difficult to locate.

The desktop unit's physical operating noise is also low, enabling in-studio operatio, although the unit has PS2 and VGA outputs so could easily be located in a machine room with remote monitoring and keyboard. The I/O on the unit I used , the PostPro D ('D' for Digital) had breakout cables terminated at the unit end with a D-sub (26-pin) connector and with XLR input using the AES/EBU standard at 48kHz/24-bit and had a separate input for sample rate conversion from 44.1/96kHz etc, also on D-sub (15-pin).

The downmixed version of the unfolded surround mix is available on XLR, again in AES flavour. At review time there was no HD audio (96kHz or above) input and the unit's internal operating sample rate is 48kHz. This might concern some, but given this is unit primarily aimed at the 48kHz-dominated post-production market, it's not a problem for most. Word clock can be locked to the incoming digital audio or provided via reference on a BNC connection, but must be at 48kHz regardless of the audio input. Analogue I/O is available on the PostPro A unit, again using XLR as the input connector interface.

## Form And Function

The function keys (F1-F5) access menus under the following topics respectively: Operating mode, Front/Rear Balance, Centre Boost Control, Miscellaneous Options and Channel Soloing (including both fronts solo, and both rears solo), and Set-up/Clock Source. I'm not going to detail every option under each menu; given the context and purpose of the PostPro unit, you can probably guess what most concern themselves with. A dedicated 'hard' centre and centre boost controls are useful in making or taking space in a mix for dialogue or voice-over, and/or locking vocals/dials to the centre speaker only – technically speaking, increasing or decreasing centre divergence.

The F1 menu contains probably the most important selection – the stereo input source to output preset type. These are Hard Centre, Penteo music, Stereo Plus (essentially the same as Penteo music but contains the whole, original mix in the left and right speakers, whilst still extrapolating the panorama to the rears and centre); Quadraphonic Mode, an L/R/Ls/Rs/4.0 mix – a now near-defunct format mainly used in exhibit centres; | Three Fronts Mode, a.k.a LCR mix and Triangle mode: a centre with summed totals of left and right placed in the rear surrounds.

To append this, the Left/Right balance and centre Boost under function buttons 2 and 3 make for a highly flexible, one-pass upmix process. Menu function 4 also has an LFE toggle so sub-100 Hz frequencies can be sent to the dedicated LFE/SW channel, or be left to be expressed by the five main panoramic channels. This, along with the bass-redirect option also in F4 (which ▸

**THE REVIEWER**

BEN STILES is a Dubbing Mixer at Spool.

redirects frequencies below 100Hz from the centre speaker to the left and right channels) ensures that listeners on home cinema systems can still appreciate the full glory of the upmix, even with some compromises on the frequency capabilities of their system's particular speaker set-up, at least in relation to theatrical 5.1 set-ups.

## In Use

As I was predominantly up-mixing musical score, I chose the 'Penteo Music' mode, giving the widest and most balanced panoramic spread (in as much as I didn't want the whole mix to be present in the LR speakers). After some time spent playing with settings to my taste, I balanced the front and rear speakers, as the Dolby system I mixed through already had a -3dB offset on the rears. Centre Boost was left at odB, as this was orchestral. I had the LFE channel active and had bass redirect off. There was a minor amount of input reconfiguring to match the the PostPro's output channel order, which was different to that of the Dolby hardware in the studio. Penteo claims that the processing delay on the PostPro is 214 Milliseconds – I found this to be true, give or take 50 milliseconds or so (probably due to other latencies in my recording setup, but we're between friends so who's counting?)

> "The depth and breadth of the score now felt encompassing but not overpowering..."

The results, based on 20 pieces of score were more than pleasing. The depth and breadth of the score now felt encompassing but not overpowering, with the high notes of the piano glimmering in the rear left surround and complementing the strings' natural panorama well. The centre gave an accurate rendition of those sounds occupying the previously phantom centre, without sounding stark or forced. I found no holes or slumps within the surround image, but noted that with this material the derived LFE channel seemed to lack a certain clarity and consistency as one would usually expect to find. The careful use of a compressor over the LFE channel helped produce a firm and driven bass LFE.

For a slightly filmic effect, a tiny amount of concert hall convolution reverb was placed almost exclusively on the the rear channels, and this helped create a haunting and ethereal quality, albeit one that was not consistent with true orchestral mixing per se, and produced an intersting downmix, given that the channels with reverb were now laid across the whole of the front left and right speakers and not benefitting from the seperation of the 5.1 rear-enabled format. The PostPro's modus operandi – only allowing one to make changes that can be transparently reproduced in the stereo downmix, without artifacting of frequency or phase or perception of volume, obviously introduces some limits

To ensure the 2.0 downmix remains accurate, the unit, for example, reduces the gain and imaging content in other channels as you affect any given channel, especially with regards to the perceived weight or volume of the panoramic spread. Thus, unconventional sonic surgery inside the PostPro is not possible; though, again, given the market, it's probably not a vital option.

On checking the downmixed stereo (which has been buffer-delayed to remain in phase with the 5.1 output) and Stereo LtRt (the LtRt done through the Dolby DMU can have notoriously strange 'steering' effects on input material moving through the Y axis, i.e., sounds moving front to back/back to front), the mix still sounded great and 'felt' right. The only real technical issue I encountered was when the original stereo mix was sent to the PostPro it contained peaks up to -0.1 dBFS; in two or three places I heard what appeared to be a clip – not a harsh digital squaring, but an audible click in the mix. Using AES format for transfer is usually 1:1 and I've only experienced issues using that format with poor quality or long cabling or clocking errors, none of which were at play here. I found that, after a few tries at different output levels from ProTools, the clicks disappeared when peaks were at -1dBFS on the signals sent to the PostPro unit. This was not a major issue as such, and the resultant recorded 5.1 mix was boosted by 1dB to achieve relative 'unity' with the original.

The levels are all as per your DAW I/O, as the PostPro itself has no metering or level detection on input, something to bear in mind. Also absent from the Penteo was a real-time LtRt encode and output of the 5.1 output, necessitating another level of encoding outside of the box.

As a brief aside, on atmospheres and effects run through the PostPro, again – the results were superb and brought to life atmospheres and effects (such as an aeroplane passing from left to right onscreen) that had previously sufficed but now seemed dull and less expressive in their stereo, unprocessed form compared to the 5.1 upmix. I think for atmospheres and generating 5.1 compliant sound library material, the PostPro will do wonders and I am aware that the manufacturers have already put this unit to commercial use doing just that to the many stereo 2.0 sound libraries out there.

One word of caution would concern using bi-polar panoramic effects – by this, I mean effects that move hard left to right or vice versa through the panorama, as sounds that are detected by the PostPro at the extremes of Pan-pot position, will be placed in the rears meaning the result can be a sweeping surround sound that appears to start in the rears, moves across the front speakers, then back again to the opposing rear channel which may not, and probably isn't, the desired stereo imaging.

## Conclusion

For ease of use, and its ability to only create mixes that can downmix back to the original, the PostPro is a heavy-weight contender in the world of 5.1 surround mixing. It's not the most user-configurable device, and certainly some other devices and software have more control over the resultant 5.1 surround image, but that comes at the risk of creating a mix that cannot fold down to a 2.0 stereo version accurately or without artifacts, and certainly not without a lot of user input in deciphering what has changed in the downmix from the 5.1 surround mix. I'd be surprised if the PostPro doesn't become more of a familiar name especially, but not limited to, in film and TV post-production.

### INFORMATION

Ⓢ **US$8,495-10,995**

Ⓐ **Penteo Surround UK, 35 Bedford Gardens, London, W8 7EF**
Ⓦ **www.penteosurround.co.uk**
Ⓔ **sales@penteosurround.co.uk**

# Sound Devices USBPre 2

**The search for a rugged, top-quality interface is over for STEPHEN BENNETT, who finds that in this case, his wallet speaks louder than words when it comes to expressing the sheer delight that is the USBPre 2.**

Sound Devices is well known for its field recorders and mixers, and the company's name crops up with increasing regularity in interviews with award-winning location recordists. Designed to withstand the abuse of life outside the comfort of the studio, Sound Devices' products are rugged and bristling with easily accessible controls – ultra important on a live set where you don't want to waste valuable time messing about with menus and parameter access. The USBPre 2 takes the company's philosophy into the field (ho ho) of computer interfaces and, while it's primarily designed to get high quality audio into and out of a computer, has a few extra tricks up its sleek aluminium sleeve.

## Hardware

Housed in a solid aluminium casing reminiscent of those DI boxes that could often be seen resisting breakage under the wheels of Land Rovers in many a magazine advertisement in the 1970s, the USBPre 2 immediately gives the impression of robustness, and oozes confidence that it could easily survive being dropped into a rucksack alongside an Uzi on a location recording trip to Afghanistan. The switches and knobs feel solid and smooth (though I'd have preferred the rotaries to be stepped) and the whole unit is weighty enough to stay put when bristling with connected cables, yet light enough to add little weight to that theoretical bag. Also, though it's only the size of a quite big portable hard disc drive, Sound Devices hasn't skimped on displays, controls, or connectors, as each vertical face of the USBPre 2 is packed with them.

The front panel is dominated by two 23-segment LED meters in a nice sweeping curve, which can display both peak and VU information, while two nicely machined gain controls set input levels.

An assignable output knob controls headphones by default, while AUX and XLR output levels are adjusted using a neat push-pull rotary control. A similar control also allows you to monitor either through any DAW software or directly from the inputs to allow zero latency hardware monitoring.

Various LEDS determine the state of phantom powering, the status of the low cut filter and the 15dB pad, and whether the dual mono option is engaged – the latter disabling channel two and routing input one to both recording channels.

The source for each input channel is selected by a small button and displayed by an associated LED, while buttons and status LEDS allow you to choose a mono headphone output and whether the meters are reading preamp input or DAW playback.

> "To install the software you first need to… no, wait – there's no software supplied, no drivers to be downloaded, no DVD to lose."

The USBPre 2 has an unusual LOOP mode where the computer audio left channel is be internally routed to input 2 – useful when using the interface for measurement, as is support for native sample rates below 44.1 kHz as these provide better FFT resolution for low-frequency audio measurements.

The rear panel sports two Mic/Line switchable balanced XLR outputs, S/PDIF ins and outs on Toslink (ADAT) optical connectors, and a priseable rubber cover for the unit's DIP switches – there's more on these later. The left panel houses the Microphone inputs on balanced XLR, two balanced quarter-inch line inputs, and two RCA/Phono consumer-grade AUX inputs, while the right hand panel's sockets cover AUX outputs, S/PDIF digital connections on RCA connectors, and a USB 2 socket that both provides power to the USBpre2 and allows it to be used as the basis of a computer-based recording system.

## In Use

To install the software you first need to… no, wait – there's no software supplied, no drivers to be downloaded, no DVD to lose. The USBPre 2 is a class compliant USB device, and as such needs no extra assistance to appear as an input and output device in your software of choice. This is a really, really nice thing, and I moved the unit between various OSX, Windows, and Linux-based machines without worrying about what OS revision was running or if the correct driver was loaded. Anyone who has had to borrow a computer in the field after theirs has crashed and wasted time trying to locate the correct driver DVD (or even an Internet connection for ▸

**THE REVIEWER**

Stephen Bennett has been involved in music production for over 25 years. Now based in Norwich he splits his time between writing books and articles on music technology, running his own Chaos studios and working in the Electroacoustic Studios in the School of Music at the University of East Anglia. He's also a filmmaker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

download) will appreciate this particular feature.

But how, I hear you cry, do you access the functions that have no physical front panel controls? Well, that's where the rubber panel on the back comes in. Prising this off reveals two rows of 10 DIP switches that allow you to set various USBPre 2 functions, along with a handy diagram on the bottom to tell you what they all do. While I understand that having these DIP switches means that Sound Devices can dispense with dedicated software while still allowing it to build a portable unit, the drawback is that you can only really adjust them using something like a jeweller's screwdriver. It's difficult, however, to see how else the company could have crammed in so many hardware-based adjustable parameters. In practice, most of the DIP switch settings won't need changing in the field, but I'd have preferred that the 48v phantom power settings at least had been on dedicated front panel controls, as it's all too easy to plug in a vintage condenser or ribbon microphone with the power already on – which, in my experience is not something you want to do too often. The rubber cover is also something I can see being easily misplaced, but this small problem could be easily solved by Sound Devices attaching it permanently to the USBPre 2 via a small rubber tie.

## The Real World

Once connected to the computer, the USBPre 2 is available as two inputs and outputs in your chosen DAW, with the physical inputs (mic, line, or digital) being selected from the device itself. I had no issues running at realistic buffer sizes under Cockos' Reaper 3.72 on Windows, or Apple's Logic Pro 9 on a Mac, the latter happily recording two channels of 24-bit/44.1kHz audio while playing back 32 tracks at the same rates with a buffer size of 32 (5.8ms latency).

The hardware monitoring is extremely simple to use, unlike the complex routing software found with some other two-channel interfaces, as you just need to balance the direct input level with the signal coming back from your DAW with the dedicated balance knob.

The headphone amplifier is particularly nice, with plenty of gain whatever the impedance of the headphones I threw at it.

Dropping the USBPre 2 into my studio in place of my favourite two-channel audio interface, the Metric Halo ULN-2, immediately showed that the converters are definitely up to the standards you'd expect from Sound Devices, providing a stable stereo field, extended frequency range, and allowing both a pair of PMC TB2 and ATC SMC 50 monitors to do their stuff with no fuss at all – I'd be happy to have this interface as my main monitoring controller.

> "The microphone pre amplifiers' technical specifications are impressive on paper and didn't disappoint aurally."

The microphone pre amplifiers' technical specifications are impressive on paper and didn't disappoint aurally. While different in tonality to the ones on the ULN-2 and the Focusrite ISA220, they are definitely of the same calibre – and a bargain at about half the price per channel of those devices, so I've no doubt about Sound Devices' claims that the converters on the USBPre 2 are the same as on their 7 series field recorders. The microphone preamps handled both whispered voices and snare drum recordings without excessive noise or being easily overloaded, and provided enough gain on my generic ribbon microphone for drum overheads.

Both input channels feature an analogue limiter circuit to prevent the ADC overloading, which can be set via the DIP switches on a per channel basis. Any limiting that occurs is displayed on the main meter and it isn't particularly detrimental to the signal as long as you don't push it too much – I just left it on. You can set the USBPre 2 to automatically select DAW metering via a DIP switch, but I found it more convenient to manually swap between these from the front panel button.

The HP mono control, which allows you to route a mono signal to the phones and is perfect for mono compatibility testing, is augmented by a DIP switch allowing you to choose if you want either DAW or Live inputs or both mono. The other DIP switches are used when the USBPre 2 is in stand-alone mode and being used as a dedicated pre amplifier.

## We Stand Alone

You can get the USBPre 2 to boot in stand-alone mode by holding down the 'Meter Source' button while attaching the USB cable to the computer or, alternatively a USB PSU or hub (5V, 500 mA maximum) can be used (though not when connected to a computer). You can even use one of those nifty USB battery packs, which then makes the USBPre 2 truly portable – though I hope that Sound Devices considers making a matching clip-on battery pack.

In stand-alone mode, the USBPre 2 behaves as an excellent two-channel preamplifier, allowing you to route line and microphone signals through the rear XLR sockets, or S/PDIF or Toslink on RCA or optical connectors. When used as an interface, the USBPre 2 obtains its sample rate settings from the host DAW, but in stand-alone mode, you need to use the DIP switches to select the desired rate. In both modes, the maximum sample rate is 192kHz depending on the operating system you use – there are no limitations in stand-alone mode. Connecting it up to my ULN-2 via the S/PDIF connections went smoothly and I have no issues with clocking or any other digital nasties that can manifest when connecting devices together in the digital realm.

## Conclusions

I've been searching for some time for a rugged high-quality portable computer interface, and also for a couple of high quality microphone preamplifiers with digital interfaces to augment my Metric Halo ULN-2. The USBPre 2 has ended my search in a neat and relatively inexpensive package. It seems like a cliché, but after my extensive testing for this review, I bought one of the first production units. We reviewers don't get them for free, despite what people think, so this probably says as much on how I feel about the quality of the interface as the words I've written in this review.

The USBPre 2 is a well built, well specified, and well connected interface and stand-alone preamplifier that won't embarrass itself alongside your more boutique devices. Probably its nearest rival in the quality stakes is Apogee's Duet but, excellent though that device is, it can't compete on features and connectivity. Sound Devices deserves to do well with the USBPre 2 – now how about an eight-channel version? AM

### INFORMATION

£ GB£529.00 (inc.VAT)

Ⓐ Sound Devices, LLC. 300 Wengel Drive, PO Box 576, Reedsburgh, Wisconsin 53959, USA
Ⓣ +1 608 524 0625
Ⓕ +1 608 524 0655
Ⓦ www.sounddevices.com

Ⓐ UK Distributor: Shure Distribution UK, Unit 2, The IO Centre, Lea Road, Waltham Abbey, EN9 1AS
Ⓣ +44 (0) 1992 703058
Ⓕ +44 (0) 1992 703057
Ⓦ www.shuredistribution.co.uk

# Doe-Ray-Mi-Casa

## The Sound Of *The Sound Of Music*...

**In an interview originally commissioned by Sonnox, Rich Tozzoli talks to Brant Biles about Mi Casa's work on the restoration of *The Sound Of Music* and the studio's application of the Sonnox toolset.**

*Brant Biles of Mi Casa.*

MI CASA MULTIMEDIA, located in the Hollywood Hills of Southern California, has a demanding client base that ranges from 20th Century Fox and New Line Cinema to Stevie Wonder and The Rippingtons. Living their theme "Hi Def Audio for Hi Def Video", they are one of the leaders in surround sound audio mixing and production for motion picture, music, and HD video. Founded in 1997 by producer/synthesist Robert Margouleff and engineer/musician Brant Biles, Mi Casa delivers the highest quality audio, regardless of its original condition.

**Rich Tozzolo: Where did work on the Sound Of Music restoration start?**

Brant Biles: We worked from the original Mag print master that was created in 1964. A few years ago Fox put out a 40th anniversary of *The Sound Of Music* and a company called Chase did the restoration.

At that time, it was deemed that the original Mag was unplayable. There was too much vinegar damage and too much instability in the geometry of the Mag itself. Vinegar damage is something that happens as Mag sits and ages. The chemicals that compose the tape itself break down and turn into vinegar. It actually crystallises on the Mag making things unplayable and irretrievable.

So along comes this gentleman Nicholas Berg, who is one of the most studious and diligent analogue-to-digital transfer engineers I've ever met. He is someone who truly cares about the art. So he told Fox he could get this original master to play back. He went ahead and built his own head stack assembly with a pressure plate he designed that pressed down on the back side of the Mag, to make sure as it travelled over the playback head that it had continuous pressure all the way across the surface of the head. He did things like wash the Mag and spray it with this special silicone and so on. But the quality that came off that transfer, versus the previous release, was night and day. It was just astounding.

RT: How about the audio?

BB: Well, the Sound Of Music was mixed originally in a format you would call 6.0. It had five channels across the front and a mono surround. So we had that as a starting point, but we were asked to do a 7.1 mix on it.

We also had a 24-track music stem available to us, and I was able to go in and take some of the orchestral elements and work with them. So it will be a true 7.1 mix with the five in the front represented properly. The two side channels have supplementation by the original music stem, and then the rear has a little bit of that pulled into it but also the mono sitting back there. So it's a true 7.1 mix from a 1964 film – and it's outstanding.

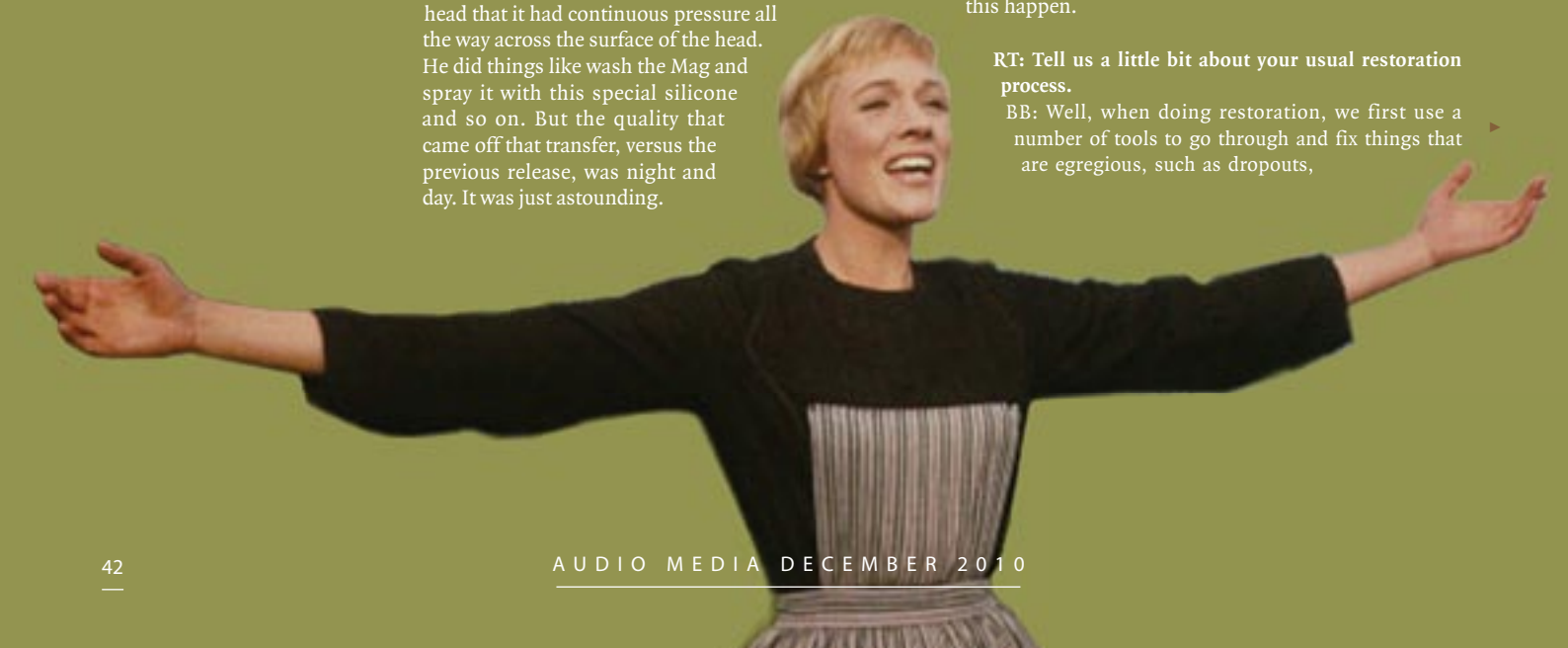
**RT: How did you get the 24 tracks of music?**

BB: Multiple Mag stripes were made. So you would have something like Reel 1A, 1B, 1C, 1D, and so on. For example, the first six tracks on the Mag would be orchestral recording. The next three on set number two might be a mixdown of that with a Julie Andrews solo vocal on track 8 and a solo guitar on track 9. Then there might be another submix that had just the kids singing on it. This is an element that Fox still has in their library, and it's the multi-track of the instrumental and orchestral recordings with the vocals.

The problem is, how do you take an analogue source, such as the original print master and layer the strings and violas, violins, cellos and so on, on top of it, without it flanging and phasing? We went ahead and used a Bricasti reverb to decorrelate it from the original print master – and kind of make those side channels and extra pair of room mics if you would. It actually worked out brilliantly. The whole team at Mi Casa made this happen.

**RT: Tell us a little bit about your usual restoration process.**

BB: Well, when doing restoration, we first use a number of tools to go through and fix things that are egregious, such as dropouts,



clicks, and pops. Once you go ahead and do a static noise reduction pass, you all of a sudden unveil the differences from cut to cut. When examining one shot to another shot, there might have been a layer of noise on top of the scene, which made the transition from shot to shot unnoticeable. But once you remove this first 'layer of the onion', suddenly all these other artefacts come out.

The thing that's great about the Sonnox tools is that they have automateability inside the Pro Tools environment. That is the "key to the lock". Beyond that, it's really about sound quality. The people at Fox, when they are sitting here listening, are almost in disbelief that it can be cleaned up that accurately. At the cut, you drop into a certain noise reduction curve and it just cleans it right up.

What we've learned is that if you have a constant noise background, it doesn't really bother you. It's when things shift instantaneously that it really perks your ears up and you realise something happened there. That's where Restore's automation is just fantastic.

### RIDING THE N-CURVE

**As well as the usual restoration tools that help bringing the oldies into the naughties, Brant Biles and Mi Casa have a couple of tricks up their sleeves, armed only with the Sonnox SurEsser plug-in.**

**Brant Biles**: "I can't tell you how great that is. So often, with these older films, the dialogue that comes off a playback track might have all this 3-5kHz spiking and sibilance. The SuprEsser can track that incredibly well and literally just suppress it. But it doesn't do it to the point where you're actually degrading the overall sonics of the mix. It just lightly steps on the dialogue sibilance, and things that might make your ear turn.

"Also, there was a thing back in the day called the N-curve, which was a theatrical playback curve which started cutting off about 2kHz. In the theatre, it would drop 14dB at 8kHz from 2kHz. It's quite a severe cutoff. It was applied in the B-chain of theatrical audio playback systems for older movies.

"The interesting thing is that when you pull up these old print masters; there is audio data above that frequency range which sounds nice. If you can get it to sit in its proper proportion to the rest of the timbre of the mix, you can actually improve the top end of these movies quite a bit.

"That's because you're not being limited by this playback curve. So these issues of upper mid-band 'spikes' might not have been heard in the original playback because of that curve. But in an attempt to keep the original top end of the mix, these elements unfortunately come out and make themselves very apparent. The SuprEsser software does an amazing job of keeping it at bay and making sure that it doesn't get out of hand.

"Overall, our workflow is different for every single project we do. It's kind of like walking down a road that you build yourself. Sometimes you back yourself into a corner and sometimes it's a glorious path. But the thing that I absolutely love about this whole suite of Sonnox Restoration plug ins is the automateablilty, and the fact that you can quickly go in there and surgically set it up to hit specific points. All the while, you're not affecting the rest of the audio. That is truly invaluable."

**www.sonnox.com**
**www.micasamm.com**

**The original interview transcription and article was edited for use in *Audio Media* magazine. Thanks to Sonnox and Rich Tozzoli for getting the words and the pictures together.**



ONE VOICE

ONE VOICE. A SINGULAR PASSION.

Using professional monitors in an acoustically correct studio is ideal for recording, mixing and mastering – but there are times when portability, sound isolation and freedom from your environment's acoustic limitations are the priority. At KRK, our passion is monitoring, whether the monitor is on the console or on your head. Being able to discern the most subtle differences in pitch, timbre and tone helps you to get it right every mix, every take, every performance. KRK Headphones provide a precise listening experience that takes you from personal studio to commercial studio to on-the-go track evaluations and they allow you to evaluate and enjoy your music with the consistent voicing philosophy and honest reproduction top producers, studio musicians, performers and engineers have come to trust.

Whether you are listening to some tracks, or tracking your next recording, the KNS series gives you the famous KRK sound in an extraordinarily comfortable closed-back around-the-ear design with highly isolated surround pads. Having "One Voice" that consistently gives you accurate reproduction of your music or mix will help you achieve just what the artist intended – especially when the artist is you.

KRK SYSTEMS Record. Mix. Monitor. Enjoy.

Proudly distributed in the UK by Focusrite®

# Lexicon LXP

**All of the Lexicon promise of great sound quality, but in plug-in format? SIMON ALLEN tests the top-notch in-the-box LXP.**

When you hear the name 'Lexicon' you automatically associate it with being very high end and the best in the business. This is partly down to Lexicon's extensive history of hardware units that established it many years ago. We all have come across some of its products at some point, and many of us have our favourites. I have used many of Lexicon's hardware units in live sound reinforcement and in the studio, such as the two iconic 480L units we have at City Studios. With second-hand hardware units available at reasonable prices at the moment, which have already stood the test of time and will continue to do so; it raises many questions. Will a software version have the same sound, will the price be competitive even compared to second-hand units, and will it stand the test of time in the same way?

## Overview

Firstly, it is important to note that this is not a software version/emulation of Lexicon's old LXP-1 hardware unit, or the LXP5 and 15 multi-effects units – even though the name might imply something of the sort. Also, laid out similarly to the LARC remote controllers, you don't need earlier experience with Lexicon's products to fully get to grips with this plug-in, anyone can find their way round.

This LXP bundle comes in VST, AU, and RTAS formats, making it suitable for any DAW. It can be installed on either Windows XP or later and Mac OS 10.4 or later for PowerPC or Intel Macs. Installation requires iLok authorisation. I tested this on City Studios' (www.citystudios.com) Pro Tools HD rig on the Mac and installation was very simple and easy.

The LXP plug-in bundle has four of Lexicon's classic reverbs: Room, Hall, Chamber, and Plate. Each one can be run as mono, stereo, or mono in and stereo out. I tried using the plug-in as a traditional AUX set up and also as an inserted effect on the tracks and it works well both ways.

There are over 200 excellent presets that come with the bundle and they are organised into small, medium, and large, except for the Hall plug-in that has small spaces, small halls, medium halls, large halls, and huge halls. Of course, as with most DAWs you can save your own presets and take them with you to another studio which is very handy.

I like the layout of the LXP's GUI window very much. It is very clear, no unusual terminology, and really quick to use. Too often a plug-in is let down by its small controls that you have to squint at the screen to use, or the button you want to press is slightly offset to where the graphic suggests.

On the GUI there are navigation buttons that bring up different parameters relating to the name, which are controlled by the 'soft row' buttons and rotary knobs. Presets can be managed by some 'control switches' and viewed in categories then individual presets. The LXP also shows level meters for ins and outs.

Lastly, on the GUI is a realtime display that has four modes; off, frequency, multi-band, or impulse. This is a really great tool that aids when trying to help build the right 'colours' in a mix. With this display off it helps reduce CPU power, which is handy when working in processor hungry sessions. The frequency display I found most useful was a simple frequency spectrum in real time. 'Multi-band' shows five ranging frequencies in time, and the 'Impluse' is a great visual representation of the reverb tail true to what you are feeding the plug-in with, rather than a static image that most reverb plug-ins offer.

> "A major advantage of having this plug-in is the ability to access a really great sounding reverb from within the box immediately without having to wire in some hardware."

## In Use

The first part to answering those questions that I asked myself when I came across this plug-in is simple. A major advantage of having this plug-in is the ability to access a great sounding reverb from within the box immediately without having to wire in some hardware. Ok, in most permanent studio set-ups it's not too time consuming to access hardware, but let's be honest – in the real world it's not always comfortable. For example, you need to remember patching, and send and return levels, not to mention anything else you might decide to use in the chain incase you visit the mix again another day.

**THE REVIEWER**

SIMON ALLEN is a full time sound engineer and record producer. Previously studio manager at High Barn Studios in Essex, he is now based at City Studios in Cyprus where he is Senior Engineer and heads up the new music studio.

In the real world, even those of us who are lucky enough to mix with hardware and analogue equipment still end up doing some mixes in-the-box. Whether it's because you're pushed against the clock, you know that you want to access the mix again another day quickly, transfer the session somewhere else, or simply that your client is difficult and you know it's going to be simpler to have the sessions available for many alterations. Basic modern DAW benefits! With the LXP you can now have a really fantastic reverb with the touch of a button.

This is crucial, as often I find it is the reverbs when doing in-the-box mixes that frustrate me. Even if you manage to get that reverb you were looking for, it probably took you a while to make the necessary adjustments. With the LXP I found the presets to be really useful and nearly all of the time one of them would suit with just a couple of minor alterations.

"It's this clarity and space that gives it that typical Lexicon sound, immediately giving your mix its 'picture'."

It is apparent that even with the humongous hall reverbs the LXP offers, they do sound huge without taking over and swamping the mix. It's this clarity and space that gives it that typical Lexicon sound, immediately giving your mix its 'picture'. It is this clarity of the reverbs and the picture that they lent to my mixes that I really liked about this plug-in. For example, I was surprised at how easily I managed to make a rock track sound bigger without that wishy-washy reverb sound. I found drums became crisper, but yet hi-hats and voices with 'esses' didn't spark off that cheap zinging sound too often found with many digital reverb algorithms.

For me, the most special thing that I heard when using the LXP is its coherent behaviour and sound across all algorithms and presets. It is really nice to use many auxiliaries loaded with different presets for different elements of your mix that in the end all come finally together. With the LXP you could have a plate on drums, room on guitars, and chamber or hall on voice, for example, and nothing will stick out. There are sonic colours in each algorithm that sit well together.

The only unfortunate point I found with the LXP is while running the LXP plug-in in Pro Tools HD, I found it needed a surprising amount of delay compensation. This indicates it is quite processor hungry – but at least that retains our conception of Lexicon's high quality image.

## Conclusion

This is a true success when it comes to sound quality. You really can have that Lexicon sound in-the-box. It isn't an emulation of Lexicon's existing products, and it has its own reverb sound that can't be found in other units. I admire Lexicon for this, as it promises a degree of endurance.

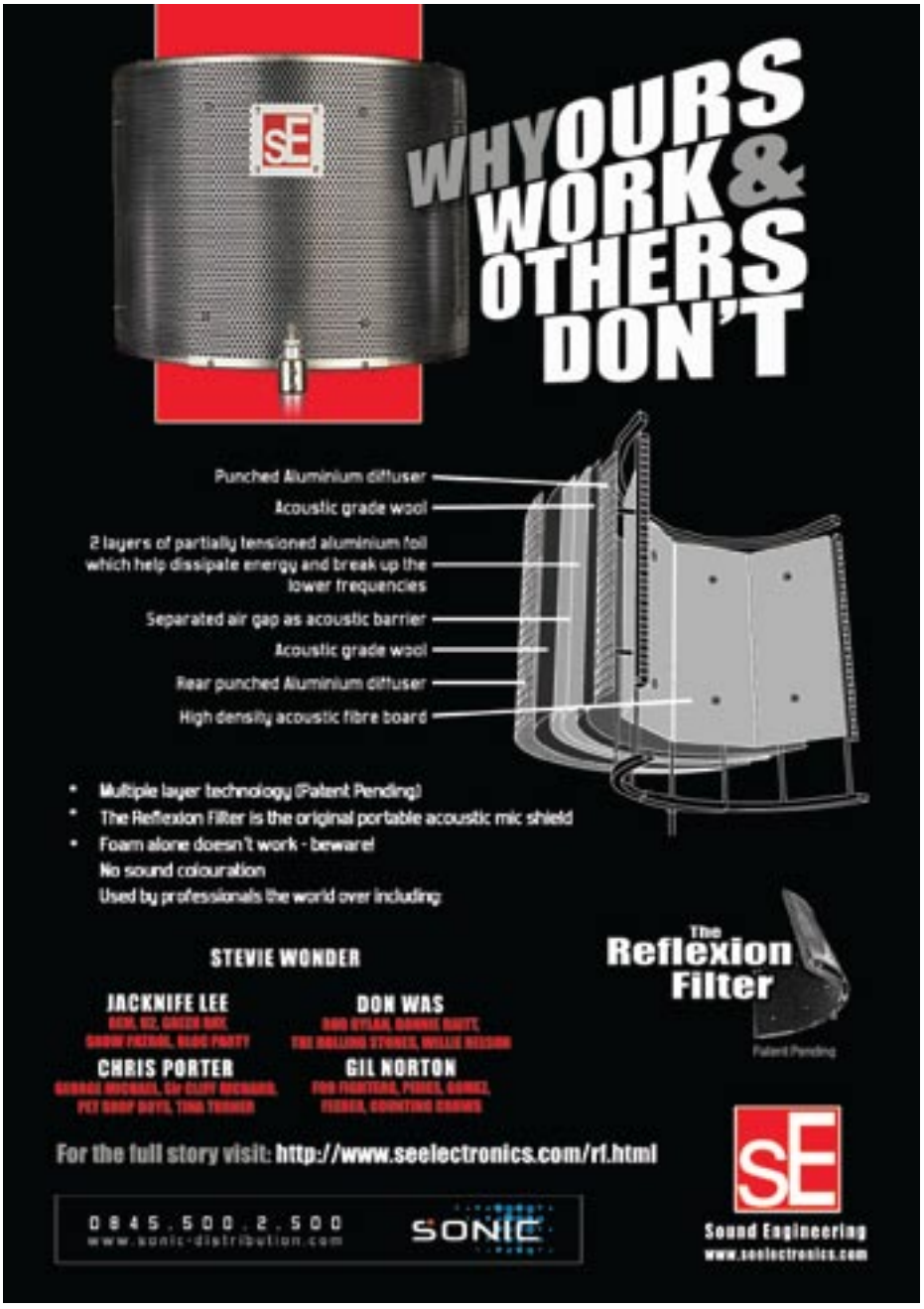
Will we see the LXP around for as long as we've seen the 480L? No one knows yet, but I think Lexicon has brought out the right product to test this. It is inevitable – we needed a decent reverb plug-in with a known name for a good price, and this is it. With its own sound colour, it is an excuse to buy into even if you could choose to have a classic unit second hand or one of Lexicon's new hardware units. Being a plug-in for most DAWs it now also automatically acquires the benefits of DAWs such as user presets, speed of use, and so on. Still, if you are looking for that classic Lexicon sound in plug-in form, you might not be able to find your favourite 'Gold Hall' preset, but you will have confidence in the Lexicon sound that will add a great image to your mixes that is coherent throughout the algorithms. AM

### INFORMATION

£ GB£480.00 (exc.VAT)

Ⓐ Lexicon, Harman HPAV, 8760 South Sandy Parkway, Sandy, Utah 84070
Ⓣ +1 801 568 7567
Ⓦ www.lexiconpro.com

UK Distributor: Sound Technology, UK
Ⓣ +44 (0) 1462 480000
Ⓦ www.soundtech.co.uk
Ⓔ info@soundtech.co.uk


WHY OURS WORK & OTHERS DON'T
Punched Aluminium diffuser
Acoustic grade wool
2 layers of partially tensioned aluminium foil which help dissipate energy and break up the lower frequencies
Separated air gap as acoustic barrier
Acoustic grade wool
Rear punched Aluminium diffuser
High density acoustic fibre board
Multiple layer technology (Patent Pending)
The Reflexion Filter is the original portable acoustic mic shield
Foam alone doesn't work - beware!
No sound colouration
Used by professionals the world over including:
STEVIE WONDER
JACKNIFE LEE
DON WAS
CHRIS PORTER
GIL NORTON
The Reflexion Filter
Patent Pending
For the full story visit: http://www.seelectronics.com/rf.html
0845.500.2.500
SONIC
SE
Sound Engineering

# MADI
## – The Comeback King!

**Twenty years ago MADI ruled the roost, but then its reign slowly dwindled. Now there's been a resurgence in the old technology. AUDIO MEDIA examines its comeback, and the latest products to feature MADI technology in its latest guise.**

WHILE CAREER COMEBACKS, reunion tours, and popularity resurgences are not uncommon in the music industry, such comebacks are unheard of in the realm of digital transports – that is unless you're former superstar MADI. No, it's not the diminutive form of Madeline; instead a nearly 20-year technology, reappearing in modern technology at an ever-increasing rate. In 1991, the Multi-channel Audio Digital Interface (MADI) was introduced by the Audio Engineering Society, hence its "official" standard name – AES10. While the original incarnation of standard AES10-1991, defined 56 channels at 48 kHz with support varispeed (+/- 12.5%), it was later amended to support 64 channels at 48kHz without support for varispeed. In 2003, the standard was amended to the current AES10-2003 "double rate" support for 32 channels of 96kHz audio.

MADI was originally conceived to route digital audio through broadcast facilities via commonly available 75Ω coaxial cabling utilised for video distribution, where the typical MADI physical media is coaxial cable connected at the device via BNC connectors. For longer distances and electrical isolation, fibre optic connections are often found. While MADI is unidirectional, i.e., data flows in only one direction, it is very common to find TX (transmit) and RX (receive) connectors to provide up to 64 x 64 channels via two coaxial or fibre optic cables on a single device. MADI is a self-clocking protocol, meaning its clock is embedded in the data and does not separate clock and data lines. Given MADI's genesis from the Audio Engineering Society, there are also many similarities to two-channel digital transport commonly called AES/EBU (technically AES3, created in 1985), thus 28 or 32 AES3 streams can be easily transported via MADI.

*Lee Minich of LabX Technologies.*

### A Sudden Resurgence in MADI

The widespread adoption of digital mixing consoles due to their ever-decreasing price points and footprints has further driven the digital audio industry and has certainly elevated the need for a convenient medium for point-to-point connections of large quantities of digital audio signals. MADI's 64-channel capability fits the needs of small to medium-scale consoles. Additionally, its support for both copper (coax) and fibre connections provides solutions for integration into broadcast facilities (via coax), as well as long distance options via fibre. This, coupled with a new generation of lower cost MADI devices from the likes of RME and other manufacturers, effectively brought new life to what once was considered a dying standard.

One of the challenges of utilising MADI is that it is inherently point-to-point. This is a blessing and a curse. The simplicity of connecting an RX to a TX is powerful and very similar to point-to-point convention analogue audio wiring (the tried and true XLR cable). The downside is it can be costly to perform "splits", sending the signal to multiple locations simultaneously, routing particular channels to various locations, or "merge" or combine channels from various MADI input devices into a single MADI stream. To accomplish this requires additional MADI devices called routers and mergers respectively. While these are prolific in broadcast facilities, they are often specialised and quite expensive pieces of equipment. Additionally, MADI is not a network like Ethernet-based standards such as Audio Video Bridging (AVB) whereby the transport medium is inherently multi-point and routable (in the case of AVB by configuring routing through the Ethernet switches).

When using MADI, it is important to be aware of the non-standard mechanisms for transmitting control data to the physical media. While AES10 clearly defines audio data format for standardised inter-device communication, there is an additional "side channel" of data available. Over the years, various manufacturers have implemented non-standardised uses of the data such as proprietary control of microphone preamps and other MADI-connected gear. Thus, utilisation of such control capabilities may vary between manufacturers' equipment.

The simplicity of point-to-point connections coupled with the high audio channel count capabilities will continue to make MADI an important part of the digital audio world for years to come. From near extinction to prominence... in that sense MADI is the comeback king!

**THE REVIEWER**

Lee Minich is President of Lab X Technologies, an engineering design firm specializing in digital connectivity including MADI and Audio Video Bridging (AVB). Lab X's MADI solutions have been incorporated into various manufacturers' products including the Avid Venue MADI module and others. Visit www.labxtechnologies.com for more information.

"Never in the history of loudspeaker design have the benefits of a coaxial driver been so seamlessly combined with directivity control elements. The result is a true breakthrough in audio monitoring."

**Jussi Väisänen, the Lead Acoustic Designer behind our 8260A Three-Way DSP Monitoring System.**

**THREE WAY REVOLUTION. WWW.GENELEC.COM/8260A**

Gear of the Year

QUALITY & INNOVATION resolution AWARDS 2010 Winner Monitoring

TEC NOMINEE

# Long Live MADI!

**Nothing demonstrates that MADI is alive and kicking as well as a long list of current MADI adoptees. Here, we take a look at those new products that have taken to the technology in its current incarnation.**

**The MADI (Multi-channel Audio Digital Interface) protocol (AES 10) was originally developed jointly by SSL, Sony, and Studer to provide improvements and updates to existing digital interface standards, such as AES/EBU and ADAT. MADI enables higher channel counts at higher sample rates, while the incorporation of coaxial and fibre (optical) connectivity enables transmission over much greater distances – up to 100m on 75Ω BNC copper cables and 2,000m if you use the fibre connections. The MADI standard has been introduced by many manufacturers into stand-alone products and also incorporated into consoles and other audio equipment, especially in the live and broadcast markets. Here are a few examples...**

## Studio and Stand-Alone Products

### SSL (Solid State Logic)

As one may expect from one of the originators of the protocol, SSL incorporates MADI into several of its products. The MadiXtreme 64 and 128 PCIe cards allow MADI communication with the company's Alpha-Link range of multi- channel I/O. The MADI-X8 is an eight-port MADI router allowing you to route one source to many destinations, or any combination of individual channels to any destination. It features source aggregation, where a single 64-channel output consists of any combination of channels from various inputs. The MADI Opti-Coax is designed to convert up to 64 audio channels bi-directionally between the MADI Optical and MADI Coaxial formats, and is equipped with both MADI SC and BNC connectors.
**www.solid-state-logic.com**

### RME

RME has bitten hard on the MADI the bullet and has a range of solutions designed to meet various connectivity needs. The HDSP MADI PCI and PCIe cards offer up to 64 channels of 24-bit audio at various sample rates via BNC and fibre connectors. The PCIe version is able to work at lower latencies and offer higher sample rates, supports the HDSP time code option – plus up to three cards can be used on the same computer. To partner these, the M-16 and M-32 AD and DA interfaces convert analogue to MADI/ADAT and vice versa, while the HDSPe MADIface is a 64-channel solution for those with Expresscard slots. The ADI series allows conversion between MADI and AES/EBU and ADAT formats, while the MADI Bridge is a 64x64 channel MIDI router. The MADI converter provides connectivity between optical and BNC MADI connections.
**www.rme-audio.de**

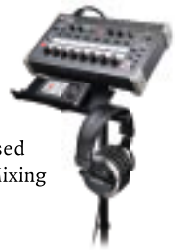
### Avid

Avid's HD MADI interface allows you to send and receive up to 64 audio streams between Pro Tools|HD and other MADI devices. It features up to 24-bit, 192kHz sample rate support and routing flexibility through optical and coaxial connections via its two MADI interfaces. The HD MADI interface integrates completely with Pro Tools|HD for full input, output, and routing control.
**www.avid.com**

### Lab X Technologies

Lab X Technologies has issued a production license to Avid for use of its MADI IP for the company's Field Programmable Gate Array (FPGA)-based MADIX Module. Featuring both optical and coaxial connections, the MADI interface can deal with bi-directional transfer of up to 64 digital audio channels, and will be incorporated into Avid's range of Venue consoles.
**www.labxtechnologies.com**

### (RSG) Roland System Group



RSG's S-MADI REAC/MADI bridge provides bi-directional conversion between the MADI format and Roland's REAC-based devices such the M-48 Personal Mixing System and their Digital Snakes.
**www.rolandsystemsgroup.net**

### Lynx Studio Technology

Lynx Studio Technology has recently introduced the LT-MADI L-slot card that drops into its Aurora 8 and Aurora 16 A/D and D/A converters. Each card features two MADI optical and coaxial ports with bi-directional support for up to 64 channels at 44.1 or 48kHz; 32 channels at 88.2 or 96kHz, and 16 channels at 176.4 or 192kHz. Up to four Aurora converters and LT-MADI card combinations can be combined for up to 64 channels of input and output.
**www.lynxstudio.com**

REAC to MADI to REAC

(Great news, which ever way you look at it)

NEW S-MADI-REAC BRIDGE

The S-MADI-REAC Bridge is a bi-directional protocol converter between REAC and MADI. It bridges between MADI-equipped digital audio mixers/systems to any REAC-based devices so you can now distribute and monitor multiple channels of pristine 24-bit audio to a whole new audience.

Call 01792 702 701 or visit www.rolandsystemsgroup.co.uk

Roland Systems Group

### Riedel

Riedel's Artist matrix intercom platform can support the company's MADI client card that provides tight integration of the Artist with digital audio router systems. All Artist intercom control panels can be connected directly to the router matrix via standard AES3 signals, and you can distribute multi-channel audio signals without laying additional cables. Multiple MADI-108 G2 client cards, each adding eight audio channels, can be used up to a maximum of 64 channels. The MADI connection from the client card to the audio router is handled via coaxial or optical cabling.
**www.riedel.net**

### DiGiCo

DiGiCo's Little Red Box and Little Blue box expand the company's digital console connectivity. The Red version is specifically designed to allow you to connect two SD9 digital mixing consoles to your D-Rack or MADI Rack (DiGi-Rack or MiNi-Rack). The main SD9 then controls all gains and rack outputs, whilst the secondary console acts as a 'receive only' module for the inputs on the same rack and can be used to control either front of house or monitors. The Little Red Box is powered via USB with a second USB 'thru' socket. The Blue version allows you to connect an SD9, D-Rack, and MADI console, (SD8, SD7, or even a D-Series) enabling the sharing of a D-Rack between two or three consoles. The SD9/MADI switch allows you to select between the SD9 or whatever console you have connected via MADI to control the D-Rack. It is also powered via USB with 'thru' and both can be rack mounted or velcro mounted onto your console.
**www.digico.biz**

## Consoles

### DiGiCo

DiGiCo incorporates MADI connectivity as the basis for audio connectivity directly into its DST theatre mixing system as well as the SD9, SD8, SD7, and D-Series live digital consoles – the control surface and various DiGiRacks being connected by either optical fibre or coaxial MADI cables. All D Series consoles are equipped with up to four, 56-channel MADI ports providing a maximum of 224 inputs and 224 outputs. You can split each Stage Rack's 56-channel MADI stream from the rack's Auxiliary MADI Out and route the MADI stream to any MADI compatible recorder or third party converter.
**www.digico.biz**

### Yamaha

Yamaha's digital consoles can be upgraded with MADI connectivity via the MY16-MD64 MADI Interface card and associated MY16-EX expansion card using Yamaha's proprietary mini-YGDAI format. Each MY16-MD64 card adds 16 channels of MADI input and output connectivity to a range of Yamaha professional audio devices that accept mini-YGDAI cards while the MY16-EX expansion cards, when used in conjunction with the MY16-MD64, increase the MADI channel capacity to up to 64 channels. The cards incorporate failsafe redundancy, with automatic switching from optical to coaxial if one connection fails. The cards communicate seamlessly with other companies' MADI devices and can be used as the basis of a complete recording solution for computers running Steinberg DAW software for recording and production.
www.yamahaproaudio.com

### Avid

Avid's well-respected live sound system, Venue, can support up to two MADI option cards each capable of sending 64 channels of 24 bit, 48kHz audio to other MADI devices, and include all stage input when one MADI card is installed in an FOH Rack or Mix Rack. The MADI card comes with automatic input signal detection and simultaneous optical and coaxial outputs for redundancy, while neat Signal Present and Optical Source LEDs are useful for troubleshooting connections.
**www.avid.com**

### Soundcraft

Soundcraft's Vi series of consoles can incorporate 64 channel MADI cards in both stageboxs and local racks to provide a recording or monitoring solution in a live venue. The Si series can be upgraded to provide up to 64 direct channel outputs by fitting an optional MADI interface card into one of the option slots on the rear chassis. The MADI stream can be fed to MADI-based audio multi-track recorders when recording live shows or as a stage splitter to feed the inputs to another console with a MADI interface. Soundcraft's MADI interfaces are based on the Studer D21m I/O system cards.
**www.soundcraft.com**

### Studer

Studer's Vista 5 compact Digital Broadcast and Live Console can also be fitted with MADI cards for monitoring, recording, or communication with other MADI-equipped devices, while the OnAir 2500 digital console also supports MADI. The D21m series interface system is based on a 19-inch 3U rack that can house up to 12 audio interface cards and one or two HD (high-density) cards. Connected to the DSP core by standard CAT-5 twisted twin cables, it can support Studer's 64 channel MADI I/O card.
**www.studer.ch**

### Allen & Heath

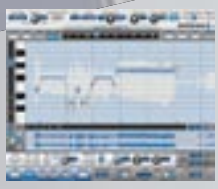
Allen & Heath's iLive consoles can be expanded via the MADI 64 option card. This provides two 64-channel MADI links, which can be independently routed in blocks of eight connections or configured as a primary and redundant pair. There is bi-directional patchbay routing for the MixRack, with 64 inputs and 32 mixes. MADI channels can be configured as microphone preamp digital splits, channel direct outs, insert points, or buss in or output feeds. The card's AUX connector can be used as a through connection of the MADI-1 inputs, or a split of the MADI-1 outputs – it can also function as word clock I/O for iLive-T systems without DARS (AES Digital Audio Reference System). The xDR-16 expander provides additional connectivity to the iLive series and up to two expanders can be added to a standard iLive system, giving a total of 32 ins and 16 outs, and the ability to fit two audio networking cards – which include MADI.
**www.allen-heath.co.uk**

### Midas

Several of Midas' consoles can incorporate MADI via the Klark-Teknik DN9650 network bridge, including the XL8 and the PRO series. The DN9650 can support up to 144 channels of sample rate conversion and independent synchronisation between MADI interfaces, including black burst, word clock and AES3. The minimal configuration requirements are set using a standard web browser and an auto-configured Ethernet interface. The DN9650 can also act in conjunction with Midas' digital snake system.
**www.midasconsoles.com**

# Plug-ins

There's a software plug-in for just about every effect imaginable. Even stalwart analogue processor manufacturers are collaborating with developers to create endorsed emulations of their gear. With this boost to plug-in street cred, we take a look at the latest, greatest, and most coveted processors on the market. It's time to start that letter to Santa.



Auto-Tune 7 corrects intonation and timing problems in vocals and solo instruments. It does so without distortion or artifacts, whilst preserving the expression of the original performance. The latest edition of **Antares**' renowned software features an entirely new time correction and manipulation system, integrated with a Graphical Mode interface to allow timing to be edited alongside pitch.

**www.antarestech.com**

Designed for both Pro Tools and **Avid** picture systems, Dynamics III is a plug-in suite that includes a compressor/limiter, expander/gate, and de-esser. The suite offers simple ways to apply dynamics processing in mono, stereo, and a range of surround formats. It also integrates easily with control surfaces and consoles to provide hands-on control of functions.

**www.avid.com**

**CEDAR Audio**'s DNS One is a dialogue noise suppression plug-in for ProTools. It is designed to save on ADR costs by rescuing otherwise unusable dialogue. A new user interface allows control of hundreds of channels of DNS from a single ProTools host. The plug-in can run as many instances of DNS One as your host system can handle, and up to 126 DNS2000s and DNS3000s.

**www.cedaraudio.com**

Discord3 is the latest evolution of **Audio Damage**'s Discord series of multi-effects. The plug-in's pitch-shifter consists of three separate algorithms for vintage, clean, or granular effects. The vintage and clean algorithms have a buffer size control from 32 to 2048 samples for fine-tuning the pitch shifting effect. The plug-in also supplies effects for delay and modulation.

**www.audiodamage.com**

SignalTools is **Avid**'s suite of Pro Tools and Venue compatible multi-channel metering and analysis tools. SignalTools includes the redesigned SurroundScope plug-in and introduces the new PhaseScope plug-in. SurroundScope graphically represents signal levels for each audio channel in the multi-channel sound field. PhaseScope compares the output phase of any two streams of a multi-channel output.

**www.avid.com**

**FabFilter**'s Pro-L is a brickwall limiter for mixing and mastering engineers. It is feature-packed, with linear-phase oversampling, advanced dithering and noise shaping, customisable look-ahead, attack, release, and channel linking settings. FabFilter combines precise output and level meters with a real-time level display to provide vital information instantaneously.

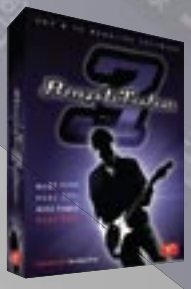
**www.fabfilter.com**

**Audioease**'s Speakerphone 2 provides over 500 presets to recreate speakers and their natural environments. These include 400 speaker impulse responses, 53 Altiverb rooms and outdoor spaces, 23 microphones, 12 DSP modules, and 106 covers including blankets and car boots. The plug-in can add dial tones, operator, static, and a wealth of ambiences on either the caller or receiver's end.

**www.audioease.com**

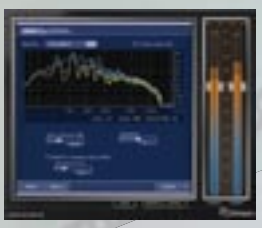
The Brainworx bx_XL mastering limiter aims to produce loud, clear mixes. The plug-in converts stereo signals into mid/sum and side/difference signals and splits the mid/sum channel into two bands. This allows the limiting of three individual channels to increase loudness and improve clarity of stereo mixes, with less distortion and improved punch.

**www.brainworx-music.de**



AmpliTube3 is the latest upgrade of **IK Multimedia**'s guitar and bass tone modelling plug-in. The software contains over 160 pieces of gear, with 51 stompboxes and effects, 31 amplifier pre-amp and power sections, 46 speaker cabinet models, 15 stage and studio mics, and 17 post amp rack effects. Packages such as AmpliTube Fender can be added at a later date.

**www.ikmultimedia.com**



RX 2 is **iZotope**'s audio repair toolkit, with a suite of plug-ins that help users to remove noise, hiss, buzz, and hum, eliminate clicks and crackle, visually select and suppress unwanted sounds, and resynthesize missing audio. An advanced version of RX 2 is also available, with the additional benefit of an adaptive denoiser, deconstruct module, and third party plug-in support.

**www.izotope.com**

The SurCode for Dolby E Stream Player plug-in delivers real time decoding for post production. **Minnetonka**'s plug-in automatically decodes Dolby E and performs a real time downmix to stereo using Dolby E metadata parameters. SurCode integrates the Dolby E format into existing workflows across platforms and applications, providing more choice for video post-production professionals.

**www.minnetonkaaudio.com**

**Solid State Logic**'s Vocalstrip provides four processing tools selected to bring power, character, and clarity to vocal tracks from a single interface. The plug-in draws on SSL professional engineering expertise to combine EQ and dynamics sections with vocal processors to combat the challenges involved in producing great vocal recordings.

**www.solid-state-logic.com**

The PCM Native Reverb plug-in bundle is **Lexicon Pro**'s collection of seven Lexicon reverbs with hundreds of versatile studio presets. Each algorithm can be run in either mono, stereo, or a combination of the two. Input and output meters are provided along with a graphical EQ section for easy adjustment of both early and late reflections.

**www.lexiconpro.com**

**MOTU**'s MasterWorks EQ collection is inspired by British large console EQs, and aims to emulate the most sought after classic equalisers. MasterWorks gives users a bird's eye view and hands-on editing of all seven filters, each of which is indicated by an individual colour. It is now available for RTAS, Audio Units, and VST3 host software on Mac OS X.

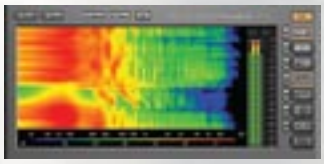
**www.motu.com**

**Sonnox** Broadcast is a collection of Oxford plug-ins that provide high quality processing and precision control for broadcast production. The collection includes the Oxford EQ and Dynamics plug-ins, the Inflator, Oxford Limiter, and SuprEsser for fixing problematic frequencies. Sonnox Broadcast is intended to dramatically improve the audio quality of any programme.

**www.sonnoxplugins.com**

POD Farm 2 Platinum is a premium tone plug-in from **Line 6** that delivers POD tone with extensive model counts and simple yet powerful workflows to any DAW. It features a comprehensive collection of more than 250 models, with vintage and modern amps, cabs, studio-standard effects, classic stomp boxes, and colourful pre-amps. Up to 10 models can be placed in any order in each chain.

**www.line6.com**



**NuGen** Audio's Visualizer audio analysis suite provides a selection of tools that give users a visual representation of various elements of their mixes. The suite includes a vectorscope, stereoscope, correlation meter, level meters, spectrum analysers, and spectrograms. Visualizer is intended to enable users to work faster and make fewer mistakes.

**www.nugenaudio.com**

**Sonnox** Post is a new plug-in bundle aimed squarely at the post production inudstry. The bundle includes Oxford DeClicker, DeBuzzer, DeNoiser, Oxford EQ, Dynamics, Reverb, Limiter, and SuprEsser. Sonnox bills the new offering as "an uncomprimising plug-in solution for audio post production." UK Native price is £1562, HD price is £2,180.

**www.sonnoxplugins.com**

The 6030 Ultimate Compressor is a single plug-in with ten emulations, each of which build on **McDSP**'s compression algorithm code base. The 6030 is based on a modular format, with a combination of newly designed modules, and emulations of existing gear. The 6030 aims to provide a custom made dynamic range control module that is right for any style and application.

**www.mcdsp.com**

The Tilt plug-in is a joint development effort between **Softube** and Tonelux. Its design was first featured on the Tonelux MP1a discrete mic pre-amp module. The plug-in is intended to make tracks sit better in a mix or sound warmer or cooler. It can also be used in a live situation to tweak the whole mix in order to adjust for ear fatigue.

**www.softube.se**

The Transient Designer plug-in is based on **SPL**'s analogue processor that established the concept for level-independent dynamic processing. Two controls allow users to completely reshape the attack and sustain characteristics of a sound. Attack can be amplified or attenuated by up to 15dB, while sustain can be amplified or attenuated by up to 24dB.

**www.spl.info**

# PRO SERIES
LIVE AUDIO SYSTEMS

## For those who refuse to compromise

- Midas sound – often imitated, never equalled
- Sample-synchronous audio quality – all audio time and phase coherent
- Daylight-viewable display screens
- 192 channel bi-directional snake included
- Up to 288 inputs and 294 outputs patched and routed on a scene-by-scene basis
- IEM-safe low and deterministic latency
- Remote, modular processing engine
- "Area 81" for those must-have-all-the-time inputs
- Flexible and Expandable

MIDAS
DESIGNED FOR A PURE PERFORMANCE
www.midasconsoles.com

**TC Electronic**'s PowerCore Assimilator learns the sound of your favourite mix and applies it to your own. Assimilator's user interface provides two complete sets of curves and a morph page. On the morph page, you can morph between two complete curve sets by moving a single fader. Assimilator can be used for film sound and mastering, as well as creative use.

**www.tcelectronic.com**

**Virsyn**'s Matrix 2 plug-in is inspired by Sennheiser's VSM 201 Vocoder, with an additional filter module to model the VSM's analogue sound. Virsyn extended the plug-in's filter range with two additional filters for the high end, as well as two filter banks for stereo operation. Matrix 2 comes with a redesigned user interface, some additional presets, and an internal noise generator for whisper effects.

**www.virsyn.de**

The C6 multi-band compressor is based on the **Waves** C4 unit. In addition to the familiar features of the original piece of hardware, the C6 delivers a further two floating bands and a sidechain feature, for vocal and instrument shaping. It helps users to target problem frequencies, and is recommended for de-essing and de-popping in the studio and on stage.

**www.waves.com**

**Universal Audio**'s dbx 160 plug-in is an emulation of the company's VCA compressor. The UAD powered plug-in version of the dbx 160 captures all of the sonic nuances of the original. Like the hardware unit, LED threshold indicators are provided in the plug-in, as well as the input, output, and gain change VU meter for which the unit is known.

**www.uaudio.com**

**Voxengo** Elephant is a mastering limiter AU and VST plug-in. It features a variety of limiter modes that can be deeply customised, and a comprehensive set of level metering tools, including headroom estimation and K-metering. Elephant's built in linear phase oversampling helps users to maximise loudness and achieve high quality peak limiting.

**www.voxengo.com**

The Sound Design Suite is a collection of plug-ins selected by **Waves** for sound designers and post production facilities. Waves consulted with film and gaming professionals to identify over 30 of the most valuable plug-ins for their needs. Film sound professional Scott Gershin describes the collection as "the basic building blocks that all sound designers should have."

**www.waves.com**

# Colour Grading Part 10

**KEVIN HILTON sees the digital intermediate into the new Millennium, with his continuing trail through the development of colour grading.**

Changing technologies and different ways of doing something often brings new players into an established product area. This has happened in all aspects of post-production equipment development, but most dramatically with telecine and colour correction. Because filmed material is now stored and worked on as data, the methods for transferring images from film and then manipulating them have changed to meet the need for higher resolutions and networked operations.

All this comes under the general heading of digital intermediate (DI), the modern, file-based equivalent of the optical intermediate method of processing negative film. The primary – and most obvious – difference between the two is that DI enables the data to be passed over a wide network within a post facility, with material available to be worked on by several operators simultaneously.

No less significant is the change in the equipment and operational methods used to do this. As long as film is used to shoot feature films and TV drama, there will still be a place for machines to transfer images from celluloid into data. The telecine machine was the workhorse for this, but the demands of higher resolution and error-free conversion into digits made clear the limitations of the older technology.

TK manufacturers addressed this by adding digital outputs and file conversion processors to a new breed of telecine machines. This created what was originally termed a datacine, a new hybrid word for a hybrid device that could still run as a standard telecine, converting 16mm and 35mm into either standard definition or high definition video, or DPX (digital picture exchange) data files.

## Getting Into The Spirit

The first full datacine came on to the market in 1996. The Spirit was the result of collaboration between Philips BTS and Kodak, and pre-dated Cintel's C-Reality by a year. C-Reality was hailed as the first full bandwidth, multi-standard datacine. It is still a key part of Cintel's product range, but is now described as a film scanner. These devices are increasingly found in post-production facilities, either alongside traditional telecines/datacines or as replacements for those machines.

A film scanner converts filmed images into digital data that is stored on a computer drive or, more commonly these days, a networked server. This is done frame by frame, working from the film negative. Once they have been scanned the image files can be found and called up on a video monitor. They are available to all operators working on the production in the different departments.

While the picture editor and visual effects artist is able to carry out their part of the project, the colourist can get on with correcting and balancing the colours – primary correction – and then the creative job of secondary correction, manipulating the colours to match the tone of the narrative or setting.

As with telecines, two main scanning systems are used: flying spot cathode ray tubes and CCD (charge-coupled device) systems. With the CRT method, an electronic beam is used to form a raster (see glossary) on the front of the tube. This scans the film, with the light illuminating each frame split into red, green and blue (RGB) by dichroic filters, which have different absorption coefficients for light polarised in different directions. Each light wave is then changed into an analogue electric signal using photocells. These in turn are converted into digits.

The CCD process is based on a xenon light scanning images, with the output passed over three trilinear sensors – one each for R, G, and B. Lightwaves picked up by the enormous amount of pixels on the sensors are converted into electric pulses, which again are digitised and saved.

The essential difference between telecine machines and film scanners, also known as input scanners, is that the TK was designed for video transfer, with the conversion happening in real-time at 24-frames per second, while film scanning, at least in the early days, operates at slower speeds in non-real time. Improvements in technology have increased scanning speeds in recent years; for example the Northlight 2, produced by FilmLight, scans at up to six times the speed of the original Northlight machine. The saved images are then stored at high resolution with full-negative range.

"A film scanner converts filmed images into digital data that is stored on a computer drive or, more commonly these days, a networked server. This is done frame by frame, working from the film negative."

## Masters At Work

Once the grade, edit, and effects work is completed the images are composited by the online editor and then mastered. To convert the finished production back to film the digital image files are passed through a film recorder.

Film scanning became a viable process during the late 1980s and early '90s. London facility the Computer Film Company (CFC) used equipment designed by one of its co-founders, Dr Mike Boudry. An Englishman who was brought up in Australia, Boudry studied electronic engineering and physics and was later a research physicist at Philips.

With his glasses, unruly white hair and moustache, Boudry very much fitted the perceived image of a boffin. Through his research work he came into contact with the film world and in 1985 established CFC with co-directors Nick Pollack and Andrew Berends. Later optical house Peerless Camera Company, owned by Kent Houston and film director and Monty Python team member Terry Gilliam, took a 30 percent stake in the company.

CFC concentrated on titles and effects sequences for feature films and TV dramas; among its credits during its

**GLOSSARY**

*Raster*

The individual frame on the front of a cathode ray tube, which is made up of parallel scan lines. In most cases a raster scan subdivides an image into a sequence of horizontal strips, which are called scan lines. Each scan line can be transmitted as an analogue signal because it is read from the video source. It can also be further divided into discrete pixels for processing by a computer system. Arranging pixels by rows is known as raster order, or raster scan order. Analogue television has discrete scan lines (discrete vertical resolution) but not discrete pixels (horizontal resolution).

REFERENCES

A Brief History for Colourists, www.finalcolor.com/history4colorists.htm

*The Complete Film Dictionary*, second edition by Ira Konigsberg, 1997 Penguin Reference

# Colour Grading Part 10

## news

Digital intermediate specialist Assimilate has introduced the latest version of its Scratch system, which is designed for grading, conforming, producing dailies, and general finishing.

New features of Scratch 5.2 include enhanced tools for stereoscopic 3D working. Among these are S-Lock, which enables colourists to maintain a left eye-right eye "dual-view configuration" and makes stereoscopic grading more intuitive.

Also included are support for REDlogiFilm Gamma, and auto-synchronisation of Broadcast Wave files.

Scratch has been used on a wide range of features films, most recently The Rabbit Hole with Nicole Kidman (pictured) and Fair Game, starring Naomi Watts and Sean Penn. Version 5.2 is available now, and users of previous systems with maintenance contracts can upgrade by downloading from http://www.assimilatesupport.com/akb/Download50154.aspx.

"Scratch 5.2 is keenly focused on the critical and ongoing trade-offs our customers make between time, project quality, and budgets," comments Steve Bannerman, Vice President of Marketing at Assimilate. "By significantly streamlining workflows and enabling increased productivity, Scratch allows artists and post-production facilities to be more creative and competitive in today's challenging landscape of shrinking budgets and rising customer expectations."

earlier days were the opening sequence of British detective series Poirot, numerous commercials and special scenes for movies including Erik the Viking (1989), directed by and starring another Python, Terry Jones.

The equipment used to do this at CFC was designed by Boudry and comprised three separate components: scanning, processing, and the final recording back to film. In the first part of the process film was scanned frame by frame to produce high-resolution digitals images, albeit not in real-time. Scanning was carried out at CFC's facility on Berwick Street, Soho, in a controlled environment, which was strictly monitored to prevent dust entering the system and compromising the pictures.

In 1997 CFC merged with Framestore, another London post house noted for its visual effects. Members of CFC's R&D team later developed a film scanner that became the FilmLight Northlight.

### Future Insight

Major manufacturers saw the way the market was going and began to produce new products to meet the growing demand for film scanning and DI operations. Eastman Kodak launched its Cineon system in 1992. This comprised a film scanner, either the Genesis 35 or Genesis 65, a control workstation, and a film recorder.

A major project for this combination came the following year when Kodak technicians used it to digitally restore Disney's *Snow White* (1937). The old footage was scanned into the system, making Snow White the first film to be converted into digital files and then manipulated to upgrade the image, after which it was recorded back on to film. The work was done at 4k resolution and 10-bit colour depth. Cineon's digital workstation features were used to both remove dirt and scratches and restore the faded colour images.

Despite this and some other early success, including Academy of Motion Picture Arts and Sciences Scientific and Technical Awards, Kodak pulled out of this side of the business in 1997 when it discontinued the Cineon. Its legacy lives on, however, because the file formats used in the system, including the .cin (for Cineon), are still in general use today.

The Cineon image file format is similar to the ANSI (American National Standards Institute)/SMPTE (Society of Motion Picture and Television Engineers) DPX file format and was developed specifically to hold scanned film images.

DPX and Cineon files are similar because both have variable header lengths and use the same format for image data. The difference comes in how the header of each is formatted. DPX file headers are flexible, which enables variable image headers to be used according to how and where the images are used. The Cineon format was designed solely for digital film and is not intended to be used in any other industry or sector.

> "But Cintel and Thomson were no longer the only players in the field. In 1999 Sony unexpectedly entered the fray with the FVS 1000 telecine, which was soon renamed the Vialta."

### The Real Klone Wars

Telecine pioneer Cintel entered the film scanning market in 1996-7. Around the same time that C-Reality was announced the company introduced a 4K pin registration scanner called Klone. Described as a "very high resolution film scanner" only six or so were sold, including one to Rushes in London.

The Cineon film scanner and Spirit and C-Reality datacines gave the signal to other manufacturers that there was room for new technologies and products. This made the late 1990s and early 2000s a fluid and sometimes turbulent period in the history of what had once been considered a sedate, stable part of the broadcast-film industry.

The starting point probably came in 1996 when Rank decided that Cintel no longer fitted in with its corporate activities. The telecine company was sold and became Cintel International. The newly independent operation laid out its stall with C-Reality, but the technological leap involved caused problems four years down the line.

Cintel went into receivership in July 2000 and was bought soon afterwards by a group consisting of some of its existing management. Executives admitted that the C-Reality had been launched with no relation to real market demand. This, combined with the strength of the competing Philips Spirit, put a great financial strain on Cintel.

That same year, despite its strong position in the telecine/datacine and camera markets, Philips decided to sell its broadcast products subsidiary to Thomson. The sale included the Spirit and the newly launched Spectre virtual datacine.

### A New Player In Town

But Cintel and Thomson were no longer the only players in the field. In 1999 Sony unexpectedly entered the fray with the FVS 1000 telecine, which was soon renamed the Vialta. This machine worked in multiple formats (16 mm, S16 mm, 35 mm, S35 mm) and multiple standards (601 SD, HD, and data). It was based on a field array CCD and had integrated primary colour correction.

Around the same time another new telecine appeared from Innovation TK (ITK). This perhaps made more sense as the company was founded by former Cintel Design Engineer Stuart Hunt and established its reputation by producing enhancements for his old employer's TK machines. During 1998 Hunt played down rumours that he was working on a full telecine, but eventually ITK took the plunge with the Millennium Machine.

The new Millennium would provide even greater opportunities for the developers of film transfer and colour correction systems, as will be shown in the next edition of Video Guide.

# Renew your *Audio Media* Print & Digital Subscription

Complete this form and fax to +44(0)1480 461550
or scan and email to a.brown@audiomedia.com

**To qualify for your free subscription you must complete all the questions below:**

**1 JOB FUNCTION** *(please circle)*

A Managing Director/owner/ corporate Management
B Studio/facility Manager
C Producer/director
D Chief Engineer
E Independent/freelance Engineer
F Engineer/technician
G Sound Design/editor/mixer
H Operations/production Manager
I Consultant
J Sales/marketing/admin
K Artist/musician
L Studio Designer
M Trainee Audio/Video Professional
N Other

**2 TYPE OF BUSINESS** *(please circle)*

A Commercial Recording Studio
B Project/private Studio
C Audio/video/film Post Production
D Audio/video/film Production
E Broadcast Production
F Tv Station
G Radio Station
H Live Sound Production
I Contractor/installation
J Venue/auditorium
K Remote Truck/location Recording
L Mastering/replication/duplication
M Rental/hire
N Acoustics/facility Design
O Multi-media/internet Web Creation
P Record Production Company
Q Corporate/government/telecomm
R Dealer/distributor/retailer
S Manufacturer
T Education/training Facility
U Media/industry Association
V Other
X Games Audio

**3 FIELD OF WORK** *(please circle)*

A Audio Only
B Visual Only
C Audio and Visual

**4 PURCHASING AUTHORITY** *(please circle)*

A Authorise
B Specify/recommend
C End user only/none

**5 PURCHASE INTENTIONS, 2010–11** *(circle all that apply)*

A Microphones
B Processors/Plug-ins
C DAW technology
D Recorders
E Monitors/ Headphones/ Amps
F Live Sound Reinforcement
G Pro Video Technology
H Consoles

Name.....
Job Title.....
Company.....
Address.....
Town / City.....
County / State.....
Country.....
Post Code / Zip.....
Tel ..... Fax .....
e-mail ..... @.....

**IMPORTANT:**
Sign here if you wish to receive **AUDIO** MEDIA

**Signed..... Date.....**

This application is not valid unless **every** section is completed and it is signed and dated. If you do not qualify to receive AUDIO MEDIA without charge, it is available by subscription at:
£43 UK, £60 Europe, £65 Rest of World.

Once you have completed this form please return to IMAS Publishing (UK) Ltd. You may fax back to us on: +44 (0)1480 461550, mail it to us at Audio Media, Imas Publishing (UK) Ltd, Subscription Dept., 1st Floor, 1 Cabot House, Compass Point Business Park, St Ives, Cambs PE27 5JL United Kingdom, or visit www.audiomedia.com/subscribe.html and fill out a subscription form for Audio Media.

Incomplete forms will not be processed. This information is used for IMAS subscription purposes only.

The Publisher offers free subscriptions on a limited basis to those who meet publisher's definition of qualifications and reserves the right to not serve or discontinue free subscriptions at any time.

Angela Brown on +44 (0)1480 461555 E-mail: a.brown@audiomedia.com

## SERVICES

aes PRO AUDIO
THE VINTAGE NEVE SPECIALIST

WANTED
OLD NEVE & SSL CONSOLES
(ANY CONDITION CONSIDERED)

AES PRO AUDIO IS A UNITED KINGDOM COMPANY WHO PURCHASE WORLDWIDE

TEL: 01932 872672 FAX: 01932 874364 TEL INT: 44 1932 872672 FAX INT: 44 1932 874364
email: aesaudio@intonet.co.uk www.aesproaudio.com

1000 CDs with Booklet+Inlay c.£600
Quality CDR / DVD copies from 51p
CD/CD-ROM Mastering £70ph
DVD, CD-audio, CD-ROM, Cassettes

Excellent!

RPM
Repeat Performance Multimedia
6 Grand Union Centre
West Row
London W10 5AS
Tel. 020 8960 7222

Over 23 years experience
Graphic design, colour print
Large and small run specialists
Excellent quality and presentation

visit us at
www.repeat-performance.co.uk

The largest collection of serious recording tools in the UK

KMR AUDIO
www.kmraudio.com
020 8445 2446 • sales@kmraudio.com
1375 Whetstone High Rd, London, N20 9LN

MANLEY api digidesign PRO TOOLS HD Neve Solid State Logic SOUND || VISION CRANE SONG

THE Buyer's Guides for Professional Audio
All available to download as PDF's from our website

Be seen amongst the best
call Graham Kirk on +44 (0) 1480 461555 g.kirk@audiomedia.com
www.audiomedia.com

## STUDIO ACOUSTICS

The Studio People 01743-885244 07977-043763
www.studiopeople.com
from designing a small v/o booth to building your multi-room studio complex ...we do it all!

CALL US NOW FOR A FREE QUOTATION AND ADVICE

## AIR CONDITIONING

AIR CONDITIONING & VENTILATION TO SOUND STUDIOS IS OUR SPECIALITY

WE PROVIDE DESIGN ONLY OR DESIGN AND INSTALLATION FOR MANY WELL KNOWN CLIENTS.

WHETHER IT BE FOR DISPLACEMENT, FREE COOLING, V.A.V., V.R.V., SPLIT, UNITARY OR CENTRALISED CALL MIKE HARDY OF AMBTHAIR SERVICES LTD ON 01403 250306 OR FAX 01403 211269

WEB: www.ambthair.com
Email: cool@ambthair.com

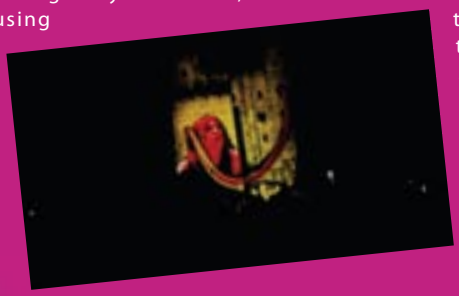
Delivered to over 140,000 professionals in print and digital format.
The Buyers Guide is *the* place to be seen.

call Graham Kirk on +44 (0) 1480 461555
g.kirk@audiomedia.com
www.audiomedia.com

## L1ghts, C4mera, Act1on: ACDC Falling Down

Is this the future of Christmas lights? Gone will be the lit-up fleet of reindeer dangling from wires above the high street, gone will be the lines of little flashing bulbs of pink, green, and blue. In their place will be a lightfest that challenges the things we think see right before our eyes – making us question our own sense of reality.

Such is the case with this 'architectural projection mapping project' recently undertaken at Rochester Castle in Kent. On this ancient site were pitted the thrashing tones of ACDC against the ingenuity of Iron Man, as the Great Keep of the castle was brought to life using the latest 3D animation techniques. Before the eyes of the audience, the castle was seen to morph and shift and warp in time to the music, spilling gold between the towers and thumping out building blocks of red, before eventually collapsing into a giant heap of rubble.



Lighting has never been like this before, and needs to be seen to be believed. The effects are jaw-dropping, and the audience were left quite stunned.

This raises the bar just a tad for this year's Christmas lights switch on…

**http://vimeo.com/11160666**

## 5hed A L1ttle L1ght

The shadowy but ever-present connection between film and game sound is being brought to the crisp white page by Rob Bridgett in his new book.

*From the Shadows of Film Sound* explores the connections between film sound production, and that of the newly emerging video game audio production culture. A fresh take on past writings as well as previously unpublished writings are brought together in this one volume, that could well prove the perfect Christmas gift for sound students as well as long-in-the-tooth sound artists working on the front line of development, or simply those intrigued by game and cinematic sound.

**www.arkhivesound.com**

## ADVERTISERS INDEX


| | |
|---|---|
| Aspen Media | 16 |
| Avid | 25 |
| BVE | 14 |
| DiGiCo | 13 |
| Focusrite | 27 |
| Fostex | 35 |
| Genelec | 47 |
| KMR Audio | 33 |
| KRK | 43 |
| Midas | 52 |
| Prism Sound | 21 |
| Radial | 59 |
| Richmond | 19, 39 |
| Riedel | 8 |
| RME | 10-11 |
| RSS by Roland | 48 |
| SADiE | 17 |
| Sonic Distribution | 2-3, 31, 37, 45 |
| Soundcraft | 60 |
| Sound Devices | 15 |
| Ultrasone | 53 |
| Unity Audio | 23 |
| Waves | 9 |

# Power Tools™ for Live Sound!

*"Radial DI's provide the flexibility I need to perfectly match any situation I come across. I specify Radial exclusively for every tour I mix."*

**~ Dave Natale**
(The Rolling Stones, Fleetwood Mac, Joe Cocker, Tina Turner)

*"We have Radial DI's on everything. And after several continents and countless dates, they continue to work flawlessly. Radial is the only direct box I use!"*

**~ Lars Brogaard**
(Stage mgr and FOH engineer - Rod Stewart)

*"Radial makes a DI box that does exactly what it is supposed to do.... no compromise."*

**~ Paul 'Pab' Boothroyd**
(AC/DC, Paul Simon, Paul McCartney, Faith Hill, Pink)

*"With today's live sound demands you need direct boxes that are reliable and the perfect match for your direct input devices. That's why I choose Radial DI's."*

**~ Rob 'Cubby' Colby**
(Juanes, Phil Collins, Prince, Shakira, Janet Jackson, Genesis)

*"I've used Radial DI's on all my major touring projects for the last 4 years, with great success. They sound fantastic and are built to last."*

**~ Jim Warren**
(FOH - Radiohead, Peter Gabriel, Nine Inch Nails, Doves, Turin Brakes)

*"We use lots of Radial products on the Linkin Park tour. Sonically Radial DI's are superb and the build quality has proven to stand up to the road. I love my Radial gear!"*

**~ Kevin 'Tater' McCarthey**
(Linkin Park, Kid Rock, Brian Setzer, Megadeth, Motorhead, Godsmack)

*"In all my years, I've never used a DI that sounded this good and solved problems this easily. Radial DIs are head and shoulders better than anything I've used."*

**~ Jeff Warell**
(FOH - America, Pat Benatar, Fleetwood Mac, Edgar Winter)

*"The Radial SW8 auto-switchers have saved the show on more than one occasion. They have proven instant and seamless."*

**~ Richard Young**
(Production Manager - Radiohead, Pink)

*"The Radial Duplex is musical and transparent... and with me everywhere I go. Thanks Radial for a superior product!"*

**~ Tom Coster**
(Santana, Joe Satriani, Larry Coryell)

**JDX™ amp & cabinet DI**
***"Perfect guitar tone every night"***
The JDX Reactor captures the signal from the head and the back impulse from the cabinet for consistent guitar tone night after night. The perfect solution for in-ear monitors!

**JDI Duplex™ stereo direct box**
***"The Swiss Army Knife DI"***
Hit it hard and the JDI Duplex smoothes out the digital edge to deliver a smooth natural tone. Ideal for digital piano, drum machines and just about anything else you can toss at it.

**Twin-ISO™ line isolator**
***"Look Ma... no hum or buzz!"***
Connect the Twin Iso between any two balanced devices and get pure signal - no noise. Jensen™ audio transformers with better than 22dB of signal handling. Loud and clean!

**SGI-44™ studio guitar interface**
***"Happy Artist = Happy Crew"***
The SGI-44 lets you connect the electric guitar to the amp, tuner and PA system without loading the pickup. Connect it to the Radial JX44 Air Control for smiles all around!

**J+4™ balanced line driver**
***"Like power steering on your car"***
The Radial J+4 takes consumer level devices and kicks out enough gain to drive your power amp into clipping. Clean, transformer isolated circuit with 100dB of dynamic range.

**JPC™ laptop DI**
***"Laptops are not made for audio"***
Computers generate tons of noise and have terrible filtering. The Radial JPC comes to the rescue with transformer isolation and buffers to eliminate PC noise for good.

Radial engineering

...power tools for power players™

**www.radialeng.com**

1588 Kebet Way, Port Coquitlam BC V3C 5M5 tel 604-942-1001 email info@radialeng.com

**Authorized Distributors:**

1588 Kebet Way, Port Coquitlam BC V3C 5M5 tel:604-942-1001 email: info@radialeng.com

| Benelux: | France: | Germany: | Italy: | Norway: | Spain: | United Kingdom: |
|---|---|---|---|---|---|---|
| AMPCO / TM AUDIO | ARBITER | MEGA AUDIO | GRISBY MUSIC | GE MUSIKK | SEESOUND | SHURE DISTRIBUTION |
| +32 3 844 67 97 | +33 2 40 11 05 05 | +49 6721 9 43 30 | +39 71 7211 340 | +47 6 486 2018 | +34 935 443 778 | +44 1992 703058 |
| www.ampcobelgium.be | www.arbiterfrance.com | www.megaaudio.de | www.grisby.it | www.gemusikk.no | www.seesound.es | www.shuredistribution.co.uk |

# Mixes the show without maxing the budget

Introducing the latest addition to Soundcraft's tour and install-proven Vi Series digital live sound console range. The new Vi1 delivers the acclaimed Vistonics operating interface along with 64 channel/24 bus mixing capacity, built-in FX and dynamics, legendary Vi sound quality and optional MADI stagebox interface – all at a price that won't max out your budget.

Soundcraft Vi1™
DIGITAL LIVE SOUND CONSOLE

Soundcraft Vi2™
DIGITAL LIVE SOUND CONSOLE

Soundcraft Vi4™
DIGITAL LIVE SOUND CONSOLE

Soundcraft Vi6™
DIGITAL LIVE SOUND CONSOLE

Find out more about the digital mixing consoles that live depends on at
**www.soundcraft.com**

Soundcraft
by HARMAN

Soundcraft T: +44 (0)1707 665000 E: soundcraft@harman.com
Soundcraft US T: 888-251-8352 E: soundcraft-USA@harman.com